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AN INFORMATION SYSTEM FOR THE MANAGEMENT OF NAVY PROCUREMENT

Kenneth Leon Patterson

AN INFORMATION SYSTEM FOR THE MANAGEMENT OF NAVY PROCUREMENT

BY

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Bachelor of Arts
San Francisco State College, 1963

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Master of Business Administration

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CHAPTER 1

INTRODUCTION

Managers of procurement organizations are currently beset by an increasing emphasis being placed upon the quality and quantity of statistical data concerning management and contractual information originating in their respective organization. Budgeting limitations coupled with increased workload requirements have forced procurement managers to investigate the adequacy of the management information systems they are using for planning, operations, and control. Problems of accumulation, digestion, and dissemination of data concerning buyer performance, contract and contractor information, prior, during and after award are monumental in scope. The solution to these problems is an integrated procurement information management system with inputs both external and internal to the procurement organization and an interface capability with existing and proposed uniform automatic data processing procedures.

Currently each procurement organization in the Navy Department is an autonomous unit operating independently in its design and implementation of procurement management information systems. A multitude of systems have been developed both manual and automated in an attempt to gain greater and faster knowledge concerning the operation of their respective procurement organization. These management information systems vary in complexity from a visual check and manual recording of data to vast computer programs able to generate large volumes of management information simultaneously and even create a procurement contractural document when inventory reaches predetermined levels.[1] Thus, to more effectively manage a procurement organization within the Navy Department, be it a remote purchasing activity in a foreign country, or a procurement organization engaged in the acquisition of major weapons systems at the military headquarters command level, the process of accumulation of data accurately and rapidly becomes paramount.

Weding and Diamond indicate that the procurement function has consistently lagged behind other phases of industry and Government in the application of modern management techniques.[2]

---

[1] Achelleas E. Kollios and Joseph Stempel, Purchasing and EDP, (New York: American Management Association, 1966), pp. 69-90.

[2] J. William Weding, Jr. and C. Gerald Diamond, "Buy by Computer", Harvard Business Review, (March-April, 1964), pp. 109-120.

They further indicate that if the procurement organization does possess modern management tools, it is often a by-product of an existing automated system, usually operated and controlled by another department, i.e., accounting. Commander A. E. Kollios, in support of Weding and Diamond, feels that the procurement organization should design, operate and control the system so as to obtain the type of information important for effective procurement management and so as not to be bound by other departments, systems, or parameters.[1] Within the Navy Department both types of systems are in effect and will be discussed.

Purchasing in general has been hampered by tradition. Procurement managers over the years have convinced top management of the uniqueness of the procurement function; that is, that it is not at all akin to the repetitive nature of the production line. Also, the procurement organization has traditionally been delegated to a minor position in the plant hierarchy, being attached generally to the production department, thus being at the bottom of the list for available resource allocation after accounting, inventory control, and production.[2]

Purchasing, in general, has been hesitant to apply modern data processing techniques to their organization because

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[1] Achelleas E. Kollios, Commander, Supply Corps, United States Navy, private interview held in Washington, D. C., October, 1970.

[2] Weding and Diamond, "Buy by Computer." pp. 109-120.

of a lack of knowledge as to their benefit, limitation and possible application.

Scope

The procurement function can be thought of as consisting of three distinct functions: (1) the pre-solicitation function, (2) the solicitation-award function, and (3) the post-award contract administration function.[1]

The pre-solicitation function originates with the procurement planning that takes place between the initiators of the procurement requests, contracting personnel, and other support personnel. All of these people are essential in the achievement of The Department of Defense's procurement mission, i.e., timely delivery of the required quality of materials or services for the best price.[2]

A successful pre-solicitation function, if formally advertised, utilizes a solicitation package known as an invitation for bids (IFB). Requests for proposals (RFP) or requests for quotations (RFQ) are used in negotiated procurements and are also the final results of the pre-solicitation function. Therefore, the solicitation packages have to be of such a detailed nature that no doubt exists in the mind of the

---

[1] U. S. Department of Defense, Procurement Training Handbook, (Washington, D. C.: Government Printing Office, 1968), pp. 1-17.

[2] Ibid.

perspective vendors when they are bidding, proposing or quoting prices and delivery dates to Government contracting officers.

The solicitation-award function is the process of actual delivery to and receipt from perspective vendors at the solicitation package. After receipt of the solicitation package, the contract is then awarded to the lowest responsible bidder.[1] Government contracts are awarded by way of a formal written notice to the successful vendor. All unsuccessful vendors are also notified that the award has been made but are not necessarily told the successful vendor and price. This information is made public at the time of bid opening.

The other phase of contracting is that of the post-award function. The post-award contract administration function is required to protect the Government's interest contractually. For example, major weapons system acquisition contracts are of such complexity that the Government cannot afford for the vendor not to produce or not to deliver the required item. Therefore, the Government plays an active role in assuring contract performance through the contract administration function.

This thesis is concerned primarily with an investigation of existing procurement management information systems utilized by the Navy, pertaining to the pre-solicitation and solicitation-award functions rather than the post-award contract

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[1] *Ibid.*, p. IDi.

administration function. An indepth study of various methods currently employed by Navy procurement organizations for controlling and monitoring procurement requests as they are transcribed into contractual documents will provide the vehicle for analyzing the types of procurement management information systems employed to accomplish these functions. This investigation of a representative sample of information systems will give an indication of the diversity and scope of the data required by these activities in the management of their respective organizations.

Problems that are encountered in the acquisition of procurement information and why managers consider this data important also falls within the scope of this thesis. The area of concern of this thesis is graphically displayed in Figure 1 below:

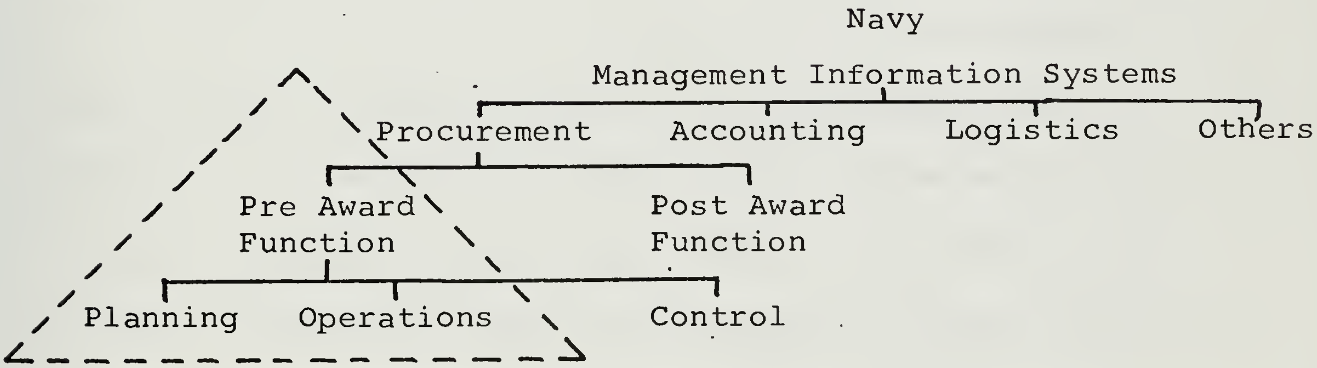

Figure 1
Areas of Concern

Two major problem areas experienced by procurement managers which this thesis attacks are how to measure buyer performance and how to reduce the amount of routine work buyers or contracting officers have to perform.

> "One of top managements most persistent problems is to evaluate the performance of the purchasing function. The problem has resisted solution for one fundamental reason. Management has not sufficiently complete and reliable data with which to measure purchasing performance."[1]

> "Most buyers have so much routine and clerical work to do they must neglect their more important creative function, i.e., one-fourth to one-third on routine tasks."[2]

Purpose and Utility

The purpose of this study is to investigate the magnitude of the procurement data explosion, the various kinds of procurement management information systems currently available and the impact of these upon contracting officers within the Navy Department.

The utility of this study lies in the development of a procurement management information system applicable to procurement organization within the Navy Department having automatic data processing capabilities. By utilizing the concepts formulated in the proposed model, a uniform automatic data processing system could be developed. Or, the model

---

[1] Weding and Diamond, "Buy by Computer," p. 114.

[2] Ibid., p. 111.

could be taken in total and utilized by those procurement activities currently which do not possess an expanded management information systems.

Research Questions

Evidence indicates a lack of agreement among naval procurement organizations as to the scope of management information necessary for effective management. The purpose of this thesis will be to study the primary research question: "What are the management information requirements to effectively control and appraise the U. S. Navy's procurement organization and operation?" Toward this end, the following subsidiary research questions will be answered:

1. What is the scope of the procurement information problem?
2. What problems are encountered in obtaining adequate management information within the purchasing organization?
3. What methods are currently employed by purchasing organizations within the Navy Department for the collection of procurement information?
4. Can ADP be more effectively applied in the management of Navy purchasing activities?

Methodology

The primary and subsidiary research questions will be discussed and analyzed using information obtained from:

1. Personal interviews with Government representatives involved in procurement management, planning and control.
2. Government training manuals, instructions, and circulars.
3. Journal and magazine articles.
4. Government memorandums.

Both inductive and deductive reasoning will be necessary to arrive at a conclusion as to the type of procurement management information systems which could be used by the Navy buying activities.

Organization

The organizational scheme is built around the proposed procurement management information system model. Principles and concepts discussed in each chapter are utilized for both model building and answering the primary and secondary research questions.

Chapter II briefly describes management information systems. This chapter is general in nature covering such areas

as the history of management information systems, size of the present information explosion, the characteristics of information, and the cost of information. Chapter III lists the problems procurement managers have both in the acquisition and evaluation of data. The different missions of the various levels of procurement activity within the Navy are discussed, along with staffing, training, manpower management, data file creation and maintenance, plus interface problems with existing uniform management information systems.[1] Chapter IV is a brief description of three different procurement management information systems. A proposed model for a procurement information system forms the framework for Chapter V.

Chapter VI presents the summary and conclusions along with recommendations resulting from the research.

---

[1] Systems having Navy as well as Department of Defense wide application.

CHAPTER II

MANAGEMENT INFORMATION SYSTEMS

Information System Approach

The term Management Information System (MIS) has gained acceptance in the business world, but its scope and application seem to be misunderstood by many. It can best be described as a completely integrated system for gathering, transmitting, and processing data into information for storage and retrival by the entire organizational unit. Management Information Systems can also be thought of as a means by which management can analyze and evaluate organizational and individual performance against established standards or policies. It is designed to provide necessary management information for evaluation and decision-making concerning the operation, supervision and evaluation of an organizational unit. The information system consists, therefore, of recorded information, people who maintain and organize the collected data, established retrieval procedures and the users of the information.

Mathematics, engineering, behavioral science, plus many other recognized formal disciplines form the basis of the information system approach.

Professor Kenneth Boulding indicates that the jest of a general system theory is to establish a body of systematic theoretical constructs which reflect the general relationships of the imperical world.[1]

The information system approach can be thought of as a systematic method of observing, analyzing, evaluating, and modifying an organization or any part or segment of an organization.[2] This approach is an attempt to bring understanding and logic to the many elements that comprise modern organizational units operating in various environments.

One of the major problems facing managers today is that of the information and paper work explosion. There are between 35,000 and 50,000 technical periodicals containing 2,000,000 technical articles published annually throughout the world, and this number is increasing at the rate of six per cent per year.[3] Before investigating the cause of this explosion and

---

[1] Kenneth E. Boulding, "General Systems Theory-The Skeleton of Science," Management Science, Vol. II, (April, 1956), p. 197.

[2] Thomas R. Prince, Information Systems for Management Planning and Control, (Homewood, Illinois: Richard D. Irwin, Inc., 1966), pp. 7-8.

[3] Morton F. Meltzer, The Information Center, (New York: American Management Association, 1967), p. 12.

how purchase managers can hope to control and contain this emerging giant, like the modern scientist have tamed the force of atomic explosives in the reactors to produce electrical power, a basic understanding of terms is paramount. What is data? How does data differ from information? The concepts of data and information are often confused.

The word "data" literally means "fact". But this basic definition is quite limiting and constricting. Data also can be considered raw material, the facts so to speak, that are imported to a management system, be it either the modern system utilizing high speed electronic processing equipment or a manual system employed by small firms in the collection of data or statistics. Data, being a raw material, requires processing before it becomes useful and meaningful. Our space satellites broadcast back to earth millions of "bits" of data during the course of their scientific mission, but this data is meaningless unless processed through a decoder which translates these electrical impulses into a useable form. Thus, business data, like that of the scientist, is merely facts which may or may not be useable in their present form to be of any immediate value to the manager.

Information is knowledge derived from the raw material input after it has been properly processed and assessed.

Therefore, data becomes information when some sort of evaluation is made and a judgement achieved. The main distinction between data and information is that information consists of data bits or elements, but not all data will give meaningful information. Meaningful information is required if a manager is going to properly manage and control his organization.

In order for managers to have meaningful information, the input data must possess the characteristics of quality, quantity, and timeliness.[1] If for any reason the data used as the basis for the information system contains any of the characteristics of poor (or inaccurate) quality; that is, if it is incomplete or out of date, the resulting management information will be of limited value as an effective management tool.

The value of any information processing system is that it has been designed specifically to meet the needs of the particular organization. A data processing system is simply a conversion unit which takes raw facts or statistics as an input and produces meaningful information as an output. Today's modern society immediately conjures up vivid pictures of vast computer complexes to supply this meaningful management information, but an information system does not require

---

[1] Donald H. Sanders, Computers in Business, (New York: McGraw-Hill Book Co., 1968), p. 3.

computers, punched cards, or any special types of electronic equipment.

The concept of information systems is not new. Briefly, modern information systems contain data from various inputs, both external and internal to the organization. The system integrates this new data with previously stored information and thus provides a frame of reference for future data and for decision-making. Information systems are not unique to modern man; evidence of information systems have been traced as far back as recorded history.

Since about 2000 B.C., when the Code of Hammuralic came into existence, businessmen have been concerned with gathering statistical information with regard to their business. Information gathering in ancient time was, of course, not as extensive as today and was confined to accounting, communications or a code, all of which still constitute information systems. Hammuralic said, "If the merchant has given to the agent corn, wool, oil or any sort of goods to traffic with, the agent shall write down the price and hand over to the merchant; the agent shall take a sealed memorandum of the price which he shall give to the merchant."

Thus, this basic law indicated a data collection system. Merchants would gather and tabulate and balance their books, so

to speak, and in this way they were processing the data which would lead to some form of decisions on the part of the merchant. During Hammuralic's time, the information collected by the merchant while performing the record-keeping process was also used for control and planning purposes.

One reason historians are able to trace information systems back as far as 4000 B.C. was that a strict business code was used during those times to record every purchase of any significance, all wills, marriage settlements, etc. Permanent records were established by pressing cuneiform characters into clay cylinders which have survived the ravages of time.

> "In 1494, Luca Pacioli, a famous man of the time, developed a treatise on double entry bookkeeping. In it he stated the following need for cash, the two most necessary requirements in business are (1) to be both good bookkeeper and mathematician, and (2) 'to arrange all transactions in a systematic way that one may understand each one at glance.'"

Another information system of historic note is that which was employed in the middle 1500's by a German businessman who commanded a vast business empire from China to Paris. He required each of his branch offices to submit secret reports indicating trends and happenings in their area of responsibility. These reports often took the form of our present-day newsletters, the only major difference being the speed of transmission of

the data or information whichever the case.

Today's information requirements are much more complex than those of 300 or 400 years ago because of the increasing complexity of modern industry and the vast increase in the need for information. David Sage indicates five major reasons for this vast increase in business system complexity. Those reasons are as follows:

(1) division of labor

(2) automation

(3) capitalism

(4) transportation

(5) communication.[1]

---

[1] David M. Sage, "Information System: A Brief Look Into History," Datamation, (November, 1968), p. 64.

Information System Use

To maximize effectiveness, an information system should achieve the following:

> "It should adhere to the organizations creeds, policies, and objectives while satisfying the individualistic needs of the administrators who use it.
>
> The information system should identify the vital items of information that affect results of the organization and those that have little or no impact on achieving desired objectives.
>
> The system should, where possible, provide the administrator with measures of risk and uncertainty and facilitate administrative evaluation of risk and uncertainty."[1]

Information-processing systems perform two types of functions that is, they perform an operational function and an administrative function. The operational function includes such activities as work load scheduling and inventory management.[2] The administrative function consists of supplying management with information it requires to make administrative decisions.

Some operations of modern industry can be extremely automated, allowing information systems to control them completely through a feedback loop of the operation. Feedback is a

---

[1] Edward A. Tomeski, The Computer Revolution, (London: The MacMilliam Co., 1970), p. 84.

[2] Lamar Lee, Jr. and Donald W. Dobler, Purchasing and Materials Management, (New York: McGraw-Hill Book Company, 1965), p. 547.

comparison of a given action against a standard for that action. An information system will respond whenever an action varies from the standard, will indicate the amount of variance, and, if the system is automatic, will make the necessary adjustment to bring the action back to standard. Feedback is a dynamic activity making corrections as it maintains the systems equilibrium.

In performing administrative functions an adequately designed information system supplements the managers observations and experiences by supplying him with selected information he can use to make administrative decisions and yet not overwhelming him with supervisor information that requires decoding or further processing. To achieve this, most information systems follow the management by exception principle. This principle has been traced as far back in history as biblical times where Jethro says to Moses in Exodus 17:22, "......that every great matter they shall bring unto thee, but every small matter they shall judge......" in this way, attention is directed toward chosen information rather than to a mass of information. Various approaches can be used to establish parameters for choosing or selecting the type and volume of information desired. One method is through the expansion or contraction of upper and

lower limit parameters. Another is the comparison of actual actions against planned or standard actions; that is, when variations reach or exceed a given bench mark, the manager is alerted to take some form of action.

Managers employing the exception principle coupled with modern computer technology can greatly reduce their paper work flow because performance that meets pre-established standards can proceed without management intervention.

Information Characteristics

Edward A. Tomeski indicates that information systems possess such general features as content, a time scale, presentation methods, and structure.[1]

Content

The content of an information system includes both an internal and an external system.[2] William B. England gives a brief description of the internal flow of information to the purchasing organization in Figure 2 below:

---

[1] Tomeski, Computer Revolution, p. 82.

[2] Ibid.

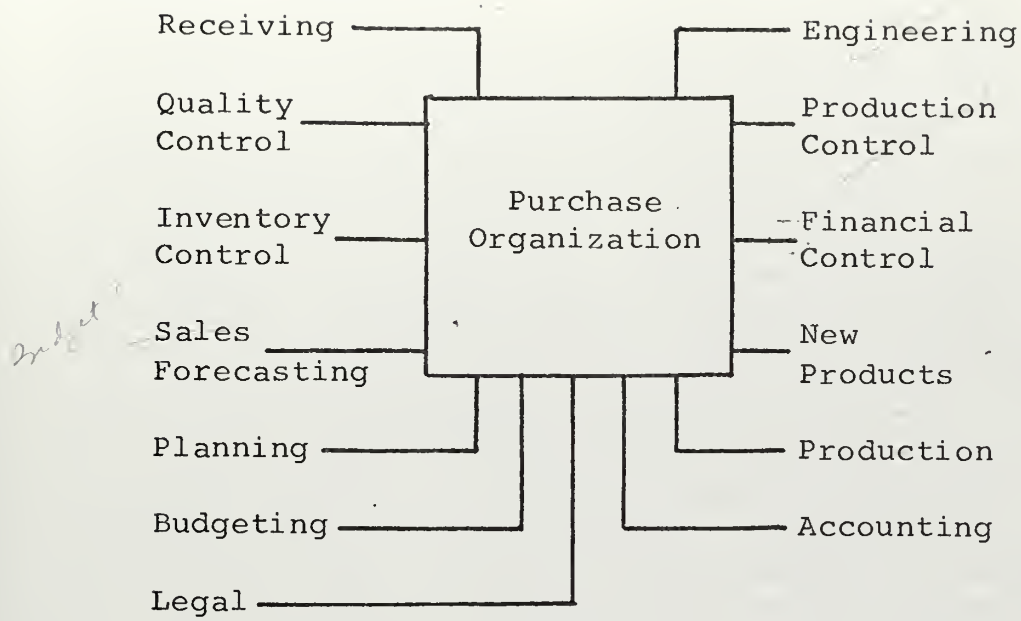

Figure 2
Internal Information Systems

* Wilbur B. England, The Purchasing System, (Homewood, Illinois: Richard D. Irwin, Inc., 1967), p. 122.

By changing the terminology from sales forecasting to budget forecasting, England's model of internal information flowing to the purchasing organization is applicable to Government procurement. The planning organization provides purchasing with the necessary information used in the preparation of long-term future requirements for such things as facilities, materials, services, and weapon systems.[1] Adequate planning is important in light of fiscal constraints imposed by Congress.

> "Procurement should start its planning well in advance of the fiscal year by holding a meeting, or series of meetings, with the offices or agencies that participate in the 'buy' decision. In the major buying organizations

---

[1] Ibid.

> such as the AFSC division, NavWeps, and NavShips, procurement management should be told what items are going to be bought, how many of them will be bought, and how the programs will be funded. (Approximately how many dollars will be available? Will the totals be released all at once or incrementally?) Obviously, the amount and detail of information available will vary from procurement to procurement, and will change -- perhaps several times -- as plans become more definite. Procurement's own recommendations may bring about revisions, too. Since this reprogramming process may have an unsettling effect on intermediate-and working-level personnel, planning should be restricted to the highest levels of the procurement organizations until it becomes firm. As soon as this happens, however, procurement managers should see that the information is made available to the men who will be working with it."[1]

Purchasing is concerned with receiving an external flow of information; that is, information from sources outside the procurement organization.[2] The various forms of external information are not limited to those illustrated in Figure 3, but, Figure 3 does represent a valid cross-section of the types of information external to procurement organizations.

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[1] U. S. Department of Defense, The Defense Management Review Program, Program Manual, (Washington, D. C.: Government Printing Officer, 1962), p. 58.

[2] England, Purchasing System, p. 123.

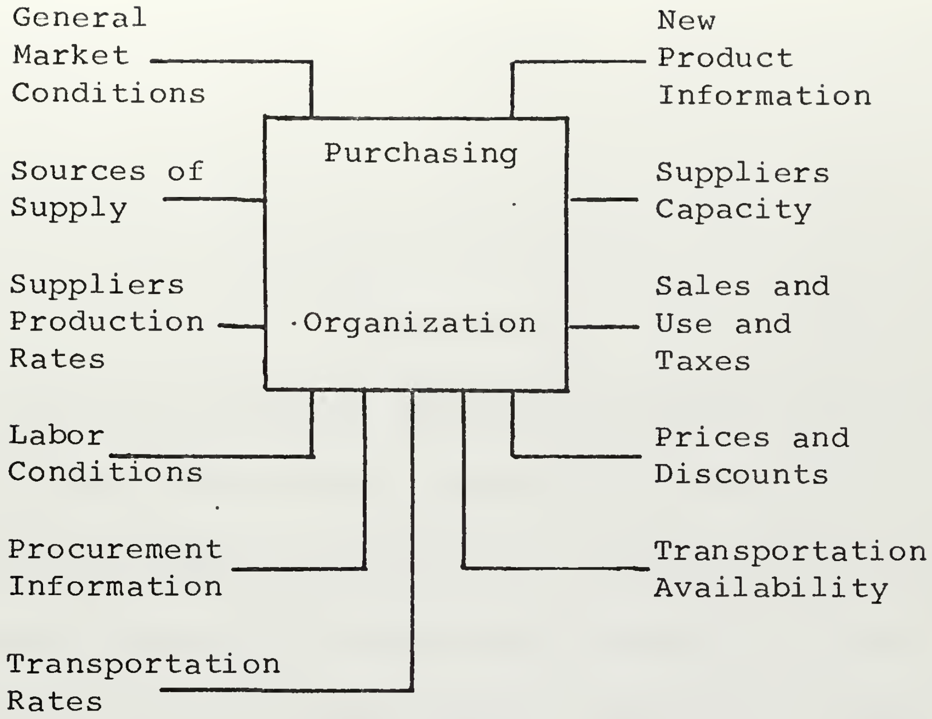

Figure 3
External Information Systems

* Wilbur B. England, The Purchasing System, (Homewood Illinois: Richard D. Irwin, Inc., 1967), p. 124.

Time scale

Information systems must provide for both historical and current information as well as some method of forecasting usable information.[1] Procurement organizations are concerned with historical information such as material history, requisition, reports, price history, vendor performance, and buyer performance, to name just a few.[2] There is some overlap of historical and current information in the requisition files. Requisitions remain active from the time they are received until the material has been paid for, remaining in the current

---

[1] Tomeski, Computer Revolution, p. 83.

[2] England, Purchasing System, p. 128.

files for future reference if required. Current information required by the procurement organization includes, but is not limited to, such files as the open requisition, vendor performance, buyer performance and bidders' lists.[1]

Presentation

Adequately designed information systems should provide for both formal and informal displays of information.[2] Tomeski indicates that formal information is information that has been given legal status by the controlling organization and is usually recorded in a formal manner. "Informal information is unrecorded and in a sense unofficial, but sometimes very important."[3]

Computer technology can display output information by writing the information on punched cards, paper tape or magnetic tape, by printing the information on paper or by utilizing visual display devices such as cathode ray electronic tubes.[4] Most procurement information management systems in use by Naval procurement organizations have arranged the computer format to

---

[1] Ibid.

[2] Tomeski, Computer Revolution, p. 82.

[3] Ibid.

[4] John Dearden, Computers In Business Management, (Homewood, Illinois, Dow-Jones-Irwin, Inc., 1966), p. 47.

correspond to that of required monthly reports. When output information is in this format, the print-out can be submitted directly to higher authority rather that first having to be transcribed onto a particular form. Appendix I, (DD1057) along with Appendix II, (DD350) form the basic output requirements for a procurement management information system.

Cathode ray display devices allow for rapid inquiry as to the particular status of desired data but have a disadvantage in that they provide no record of the inquiry. It is, however, a formal display of information, indicating current information at the time of inquiry. It, therefore, can be thought to be in terms of real-time[1] vice the time passed reflected in normal printed reports or listings.

Structure

A meaningful and flexible information system must cause information first of all to be generated, then transmitted, then received and subsequently utilized.[2] Information systems structured in such a way as to be flexible allow the organization to react to internal, external and changing organizational pressures and conditions. Oliver W. Tuthill indicates information technology today is experiencing a fantastic rate

---

[1] "A real-time system is one where: (a) information is stored on random access equipment; (b) the information is updated frequently enough to be considered correct at all times; and (c) the information can be retrieved as quickly as needed;" From John Dearden, Computer in Business, p. 275.

[2] Tomeski, Computer Revolution, p. 82.

of change in contrast to the time of the industrial revolution where business assumed a laissez-faire attitude toward the general welfare of the society it served. Today, pressures of competition, political concern for the public interest, and current anti-pollution action groups force those managers and organizations who have delayed or ignored the changing times to learn and grow with the changing environment. "In short, a more sophisticated management is essential as the momentum of socio-economic change continues to increase."[1]

Several factors contribute to this fantastic rate of change currently being experienced by modern industries. These factors affect the Navy's procurement organizations both directly and indirectly by bringing about changes in price, delivery schedules and performance characteristics. The changes can be beneficial or detrimental to the mission of the service, depending upon their degree of variance from the required norm. Population growth, increased education, and a highly mobile population all contribute to change, but the impact of current technology upon factory automation and the subsequent shift from many blue collar workers to white collar workers will and does affect the price of goods and services the Government must procure.[2]

---

[1] Oliver W. Tuthill, "The Thrust of Information Technology on Management," Financial Executive, (January, 1966), p. 19.

[2] Ibid.

Some of the information generated from a flexible information system will be action-oriented and relay decision-making information to managers while other information will be non-action-oriented (such as historical files and reports).[1]

Information systems themselves are composed of basic building blocks arranged in various levels of a hierarchy. These basic elements are represented in Figure 4 below:

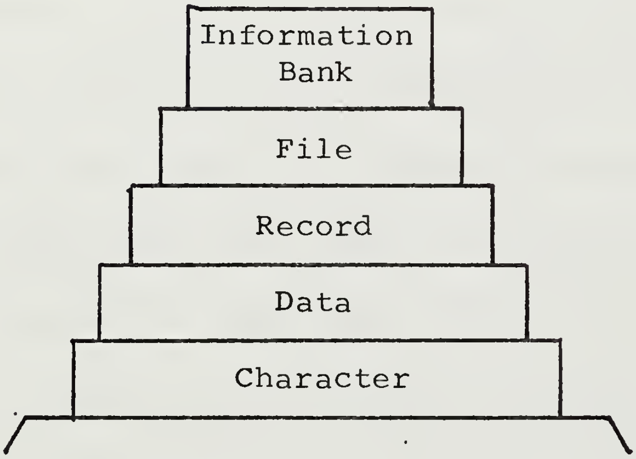

Figure 4
Information System Hierarchy

Character: The individual symbols or bits that are used to represent data, such as number, punctuation, alpheric letters and special characters.[2] An example of a character would be the magnetic ink character recognition system employed by the American Banking Association that can be read by humans as well as machines.

Data: Grouping of character in such a way as to be able to assign meaning.

---

[1] Tomeski, Computer Revolution, p. 83.

[2] Richard N. Schmidt and William E. Meyers, Electronic Business Data Processing, (New York: Holt, Rinehart, and Winston, 1963), p. 104.

Record: A collection of related items of data collected from various inputs and treated as a unit.

File: A collection of related records which is dealt with as a unit.

Information Bank: A collection of files which is treated as a unit.

Cost of Information

Management information does not come free to the organization. More information entails more cost incurred in the collection, processing, retrieving and dissemination functions. Computers have been introduced to help hold the cost of information down to that of conventional methods (manual and mechanical) and also to provide management greater availability of data with which they can attempt to increase profit.[1] Third generation computers and information systems utilizing modern technology to decrease processing time and increase storage capacity by using minaturized components has proliferated the amount of data available to the manager. But, managers must be aware of the relationship between the size of the information data bank and the information it can generate and the cost required to generate this information and the value of the information towards achieving operational goals.

Therefore, managers should be aware of the economic

---

[1] *Ibid.*, p. 147.

impact of information they request or desire and weigh its value against its cost. Several factors that determine the cost of information are quality, quantity, timeliness, relevance, and consequence.[1]

> "Quality: High quality information reduces the range of uncertainty about the results of taking action based on the information and encourages administrators to have greater confidence in exercising their functions.
>
> Quantity: Usually, the higher the quality and the larger the quantity of information the greater the predictability of events that are of interest to administrators.
>
> Timeliness: Information is timely in the sense of being available when required. Time has two dimensions in the information field. The first is the time span to be reflected in the content of the information, (e.g., day, week, month, quarter, year, five years). The second dimension is the time it takes to provide the information after it is requested, (e.g., it may take a few seconds to obtain information from a computerized information system, while it may take several weeks or longer to prepare such information on a noncomputer basis).
>
> Relevance and Consequence: The information generated should have a relevance for the purpose intended. The consequence of having (or not having) the information either enhances the administrative process or impairs it. Seldom will there be a strictly neutral impact."

Tomeski has developed a model bringing together the characteristics and uses of information, balancing the types of information, uses in the organization, and consideration of value and cost functions along three axis. Figure 5 represents this relationship:

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[1] Tomeski, Computer Revolution, p. 85.

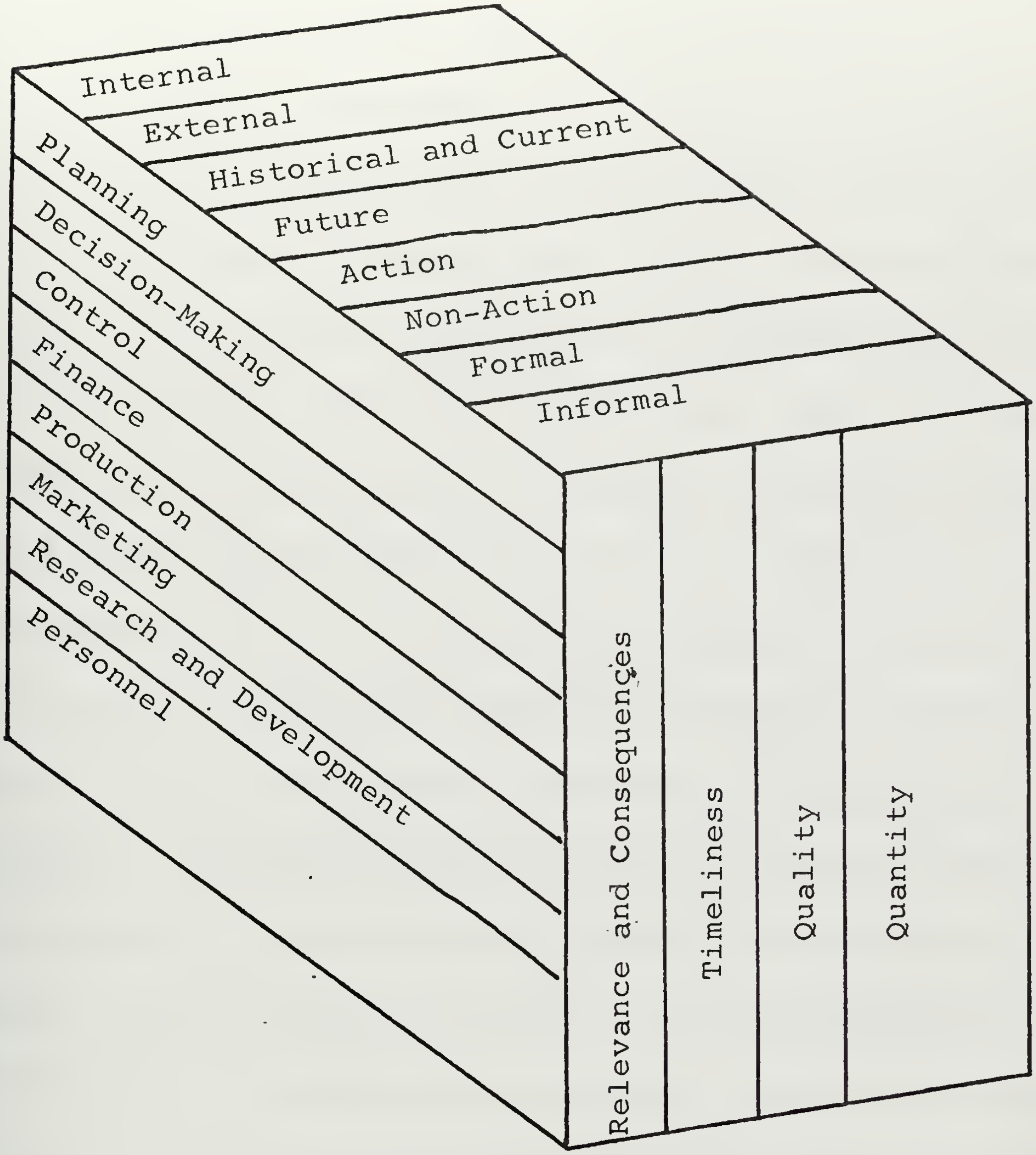

Figure 5
Information Characteristics

Weakness

Procurement and contracting functions have long suffered from a lack of an integrated data base. An integrated data base is a method of establishing and classifying data into standard

definitions or codes. The Navy currently uses the Armed Services Procurement Regulations (ASPR) provisions which have standardized forms, criteria, and numbering.[1] Uniform procurement instrument identification numbering procedures (PIIN) provide for an effective common reference point for all communications involving contractural instruments.[2] Standardized techniques are employed for numbering contract line items and exhibit line items facilitating the use of automatic data processing equipment by allowing establishment and control of records that can be processed by machines for each line item of the procurement instrument.[3] Standardized Material Inspection and Receiving Report (DD 250) has further standardized the placement of data elements. Nonessential data or data already available on other instruments or forms has been reduced.[4] The Uniform Contract/Award and Modification Documents have standardized the format and content of procurement instruments to allow for ease in transfer of contract administration data from the contracting officer to the contract administrator.[5] Military Standard

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[1] U. S. Department of Defense, Armed Services Procurement Regulations. (Washington, D. C.: Government Printing Office, 1969 Ed.).

[2] Armed Services Procurement Regulations, Section 20, Part 2.

[3] Armed Services Procurement Regulations, Section 20, Part 3.

[4] Armed Services Procurement Regulations, Appendix I, Part I.

[5] Armed Services Procurement Regulations, Section 16, Paragraph 104.3-104.4.

Contact Administration Procedure (MILSCAP) is an attempt to attain a greater degree of simplification, standardization and automation in the processing of procurement and related logistic and financial data.[1] All of the above standardized forms and procedures have evolved over the years allowing for accurate communication between various members and contracting identities of the Navy and the Department of Defense. For meaningful communications and adequate coordination it is imperative that a modern information system be based upon a soundly structured data base.

Another weakness exhibited by many information systems is a lack of a single stream of data and information.[2] Often actions occurring in a particular area are not communicated to other units within the organization, although the actions will affect those units. Disregarding the actions of one unit might affect other units and result in a discontinuous flow of data and information. Tomeski indicates that the single stream approach means that data-representing-events taking place in one unit are used to update all related files and provide output information to all interested individuals.

Without an integrated data base and single stream of

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[1] U. S. Department of Defense, Military Standard Contract Administration Procedures, (Washington, D. C.: Government Printing Office, December, 1966).

[2] Tomeski, Computer Revolution, p. 90.

data, managers will experience difficulty in obtaining accurate and timely information from their information systems. Poorly designed information systems can lead to ill-conceived plans, poor decisions, and ineffective control. However, by having an integrated data base and a single flow of data and information, organizations generally will have information systems with a high degree of information accuracy and integrity, and will eliminate overlapping functions and duplication.[1]

Professor John Dearden indicates that information is not homogeneous and that different kinds of information must be treated differently.[2] He believes five important dichotomies of information exist and are as follows:

1. Internal and external
2. Recurring and nonrecurring
3. Historical and future
4. Action and nonaction
5. Documentary and nondocumentary.

Therefore, in order to effectively handle information that is entering, circulating, being generated, and being outputted from an organization, it is important that the organization possess a logical system to handle these dichotomies.

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[1] Ibid., p. 91.

[2] Dearden, Computers in Business Management, pp. 115-116.

Organizations' Information Requirements

Organizations' units can be thought of as a large series of information networks, connecting the requirements for particular information or data. Large complex organizations, with many units having different missions and operational characteristics, require a different information system or network for each unit and require an overall informational system superimposed upon the separate informational systems.

Modern tools, methods, techniques, and processing equipment have been applied to this management concept. The viewing of an organization as a series of informational systems has been expressed by management theologians for many years.

The Naval organization, being similar to large businesses, can also be thought of as consisting of a network of information systems. Therefore, to be able to understand the nature of a Navy-wide management information system and subsequently a Navy procurement management information system, present organizational structures must be investigated.

Basic management information systems for the Navy parallel those in current industrial structures. This management structure can be thought of as a hierarchy composed of three levels of management as diagrammed in Figure 6.

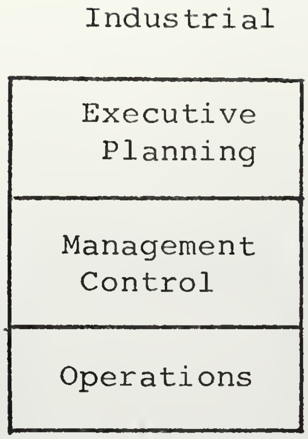

Figure 6
Basic Management Structure

Each of these levels in the management information system hierarchy structure has their counterparts in the Navy. The executive planning level is quite similar to the *Secretarial level*; management control to *Command level*; and Operations to the *operating level*. This structure is not rigid, and any position of management, both industrial and Naval may fall into any or all of the three levels, depending upon the function of the organization unit and its related decision-making requirements.

Different types of information are required for the inputs and outputs at each level of management. Presently, there is not a Navy-wide management information system which provides the inputs and outputs which would allow for a vertical flow of information or data by any automated means. Figure 7 represents input-output relations superimposed upon the management

information system hierarchial structure.

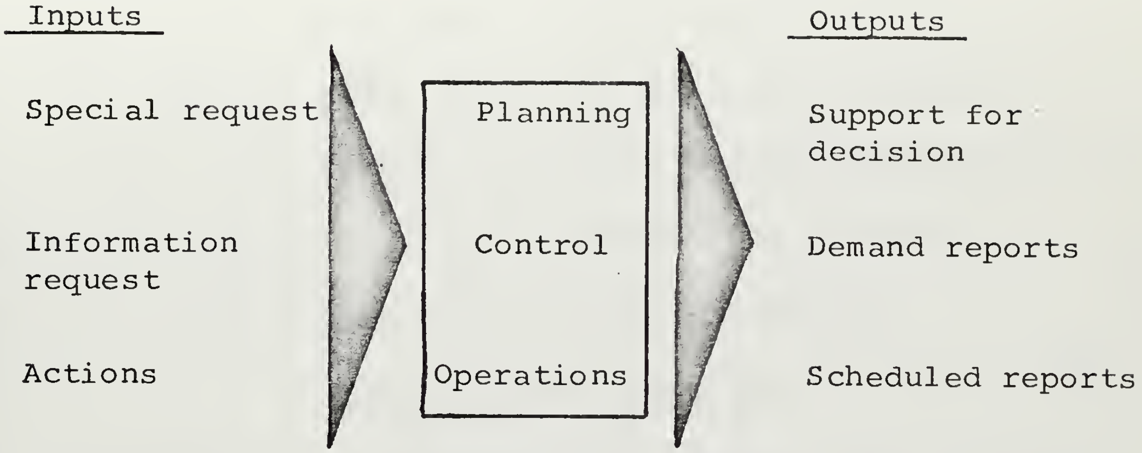

Figure 7
Input/Output Relationships

Management information systems can be viewed as a sub-system with a vertical structure. Components comprising this vertical structure are for example; material, fiscal, facilities, transportation and maintenance. Because of the structure and size of the Navy, there doesn't exist an electronic or automated system of management information combining more than one or two of the subsystems, mainly due to the lack of an integrated data base. Currently, approximately 500 automated systems and subsystems exist in the Navy; very few are similar, but, what is more important, very few of them input and output to each other; therefore, little integration of systems and procedures has taken place.[1]

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[1] U. S. Department of Defense, Authorized Management Control Systems List, (Washington, D. C.: Government Printing Office, July, 1970).

Vertical subsystems have the following problems:

1. Lack of adequate control data.
2. Inability to communicate between systems.
3. Lack of uniformity of formats and procedures.

These problems have, no doubt, caused difficulties and delays on the operating level of the Navy by causing redundancy in reporting and inputting information.

Summary of MIS Benefits

Because of the advantage the computer offers modern managers, several valuable tools will be at his disposal for decision-making and performance evaluation. The rapidity of information flowing both horizontally and vertically will bring managers closer to their subordinate's activities. They will be more aware of operational status through a no-delay system instead of relying upon weekly, monthly or quarterly summaries. This real-time reporting will increase the amount of control top management will exert upon their subordinates. No longer will external organizational units enjoy the buffer of time or lengthly reports; therefore, increased discipline will result.

Gathering information requires the expenditure of scarce resources. Under a manual system, only the most rudamentary data could be collected. But, through the use of a well designed

management information system, more information, in greater detail, and quantity, can be assembled in less time. Lastly, the management by exception principle is a natural product of MIS, allowing the manager time for managing his organization rather than becoming mired in a sea of reports and detail.

CHAPTER III

INFORMATION SYSTEM PROBLEMS

Data Acquisition

The Armed Services Procurement Regulations, composed of over three-thousand pages, provides procurement personnel with instructions on what can, may and must not be done during the course of a procurement action. Considering the diversity and wide scope of government procurement actions, the procurement management reporting system is simple and brief. The section of the Armed Service Procurement Regulation on the procurement management reporting system states:

> "This section prescribes uniform reports which are required to be prepared by purchasing and contract administration offices in order to provide management with necessary information to help formulate change or measure the effectiveness of procurement and policy."[1]

Only four reports are listed, and these constitute the total requirement for the control of the Armed Forces Procurement system and the satisfaction of public law. These

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[1] Armed Services Procurement Regulation, Section 21, Paragraph 000.

reports are: (1) The Individual Procurement Action Report (DD350); (2) The Monthly Procurement Summary of Actions under $10,000 by Purchasing Office (DD1057); (3) The Report of Individual Contract Profit Plan, (DD1499); and (4) The Report of Contract Completion (DD1500).[1]

It would hardly seem possible that such a vast procurement system could be effectively controlled on the basis of only four reports. And, as it is that the number of reports and management information systems have been increased to the point where the effort expended in managing the reporting system is approaching the amount of effort required to manage the procurement actions themselves. Without some consolidation and elimination of duplicate reporting, the results of the present trends could prove more harmful than beneficial. From this simple four-report system has proliferated a vast number of Navy Department procurement reports, two examples of which are the S&A 80, Letter Contract Report and Cost Incurred on Contract Report (DD1177).[2]

Procurement personnel are often evaluated and rated on the amount of data they can provide concerning their operation. For some reason, top level management believes the mark of a

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[1] Armed Services Procurement Regulation, Section 21, Part 1-4.

[2] U. S. Department of the Navy, Navy Procurement Directives, (Washington, D. C.: Government Printing Office, 1966 Ed.), Section 16, Paragraph 250.

good procurement chief is the ability to quote chapter and verse of prices paid over the last five years for arresting cable for aircraft carriers, for instance. In their desire to provide service to customers, procurement chiefs often indicate they will immediately get data, such as the number of non-responsive bidders in some obscure procurement for shoe strings.

It doesn't seem logical that managers would need or be required to have this detailed information at their fingertips. In fact, if a manager does have this information readily available, it could quite possibly indicate that he is doing the work of his subordinates, is expending unnecessary resources in the accumulation of this data or at least could utilize his time more productively in his own area of management.

When evaluating or controlling a procurement organization the important factor to consider is not who has the management information, but rather who produced it, who uses it, and how much it cost. However, because so much emphasis is placed on procurement statistics by the higher command, considerable time and talent, often far in excess of the requirements, is diverted by the subordinate commands to the function of reporting statistics. Lieutenant Colonel William McKeown, in

his thesis concerning Material Procurement in the Army, indicates that in the Army Material Command fifteen internal and forty-one external reports are required, plus other related reports submitted by other elements of the U. S. Army Material Command.[1] He further makes the conjecture that with all of the services reporting to all of their respective levels of command, there must be literally thousands of procurement reports being submitted to managers at all levels.[2] Such a vast reporting requirement, no doubt, reduces efficiency in the procurement function. Furthermore, LTC McKeown indicates that a continuation of this trend could mean, from a defense procurement management viewpoint, that procurement officers would be judged by the completeness of their files, i.e., by the extent of their reporting systems and latest information they have available. Thus, the procurement manager who only maintains the reports needed to effectively manage his organization and who is more concerned with getting lower prices and doing a better job of the procurement function would be penalized because he didn't maintain a set of files that "might be useful someday".

An example of this is illustrated in the reporting

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[1] William L. McKeown, Lieutenant Colonel, United States Army, "The Department of the Army Material Procurement Management System", (unpublished Masters Thesis, Industrial College of the Armed Forces, 1969).

[2] Ibid.

requirements for procurement response or procurement lead time.[1] Command headquarters is interested in procurement response time for two reasons. First, they want to know how long it takes to process a purchase order or to negotiate a multi-million dollar contract. Secondly, they want to compare the various procurement organizations in terms of the response time, number of actions completed, and manning level utilized in acquiring these results. Whereas, procurement activities are often required to submit data which is not normally collected over the years, these managers have found no meaningful use for this information other than that it is nice to know. Knowing this information may no doubt help them to improve their procurement operation, but they hesitate to expend the resources necessary to acquire this data.[2]

The Naval purchasing organization is composed of the activities listed in Figure 8 below:

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[1] Response or lead time - The time it takes to internally process a purchase request in a procurement organization.

[2] David Ward, Special Assistant, Navy Purchasing Office, Washington, personal interview, Washington, D. C., October, 1970.

Command or Activity	Thousands of Dollars	% of Dollars	Number of Actions	% of Actions
Ordinance System	$ 1,320,980	10.8	1,709	0.1
Air System	3,356,326	27.6	6,908	0.2
Supply System	3,245,123	27.0	3,271,436	91.8
Ships System	1,703,761	14.2	6,865	0.2
Facilities Eng.	998,462	8.2	9,166	0.3
Electronic Systems	283,830	2.2	780	0.1
Admin. Office	7,600	0.5	10,959	0.1
Naval Research	164,960	1.2	1,994	0.1
BuPers	9,970	0.7	1,515	0.1
Marine Corps	169,913	1.3	220,290	6.1
MSTS	788,384	6.3	34,177	0.9
	$12,049,309	100.0	3,565,799	100.0

Figure 8

Major Navy Purchasing Organizations

* U. S. Department of the Navy, "Survey of Procurement Statistics", Naval Material Command, (Washington, D. C.), June, 1969. pp. 8-10.

Field Purchasing Organization

Major activities composing the Field Purchasing System of the Naval Supply System Command are listed in Figure 9 below:

Activity	Total Number of Activities In Each Category
Purchasing Offices	3
Supply Activities NSC/NSD	13
Shipyard Activities	8
Air Activities	10
Inventory Control Points	4
Ordinance Activities	12
Naval Stations	7
Miscellaneous	12
Total	69

Figure 9

Navy Field Purchasing Organizations

* U. S. Department of the Navy, "Survey of Procurement Statistics", Naval Material Command, (Washington, D. C.), June, 1969, pp. 8-10.

A better understanding of the magnitude and scope of procurement functions can be achieved by examining briefly the function and areas of responsibility for just a few of the activities of the Naval Field Purchasing System. For example, the typical Navy Purchasing Office is assigned a geographic support area over which it generally has contracting authority for procurements over $2500. A listing of outstanding requisition for the Navy Purchasing Office, Washington, D. C. revealed support effort for 189 separate commands. The buying performed by these activities is generally for the one of a kind requirement such as a room air conditioner for the admiral's quarters. In Fiscal Year 1969, Navy Purchasing offices performed 36,155 such actions with money obligated in excess of 308 million dollars.[1] Since Navy purchasing offices are separate activities, they have to rely upon activities external to their organization for computer and automatic data processing support.

Procurement organizations attached to Naval Supply Centers generally provide purchasing support to fleet units for non-standard items. These items are generally one of a kind buys. They also provide supply support for the inventory control department of the supply center by making repetitive buys of locally managed items. A few purchase organizations,

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[1] *Ibid*.

like those at Charleston, Long Beach, and Puget Sound, support geographic areas as well as their respective shipyards. In Fiscal Year 1969, supply centers accounted for 632,378 actions expending $257,021.[1] Supply Center activities require computer capability to process the vast number of requisitions into and out of the logistics pipe line.

Inventory control points provide support for the Supply Center activities. Inventory Control Points manage a given quantity of items which support major weapons or support systems. Purchasing in these activities is analogous to industry, where the same item is being purchased on a repetitive basis. Because of the repetitive nature of the buys, i.e., because the same 12AX7 tubes are bought year after year, automated procurement systems have been developed for these functions utilizing extensive computer programs. Purchasing at inventory control points has been automated to such a degree that price history files, maintained in data banks, can be recalled upon demand. The repetitive nature of the buy allows all of this data to be accumulated simply under a given federal stock number.

Figure 10 is a brief summary indicating the basic difference between the three types of Navy procurement activities.

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[1] _Ibid_.

	Type of Support	Automated Procurement	Ready Access to Computer	Types of Purchases
Navy Purchasing Officer	Area (many commands)	No	No	One of a kind
Naval Supply Centers	Area (many commands) Stock (own activity)	No[1]	Yes	One of a kind Stock
Inventory Control Points	Stock Special	Yes	Yes	Stock Special Purchases

Figure 10
Inventory Comparison by Activities

Procurement Staffing

Each of these procurement activities has their own unique problems of acquiring data necessary for the management of their organization as well as data they consider "nice to know" (but is considered important by higher command). Procurement staffing is a case in point. Managers in the field generally obtain their staffing levels from the organization to which they are attached. The purchase organization in a supply center must take its proportionate share of increases or decreases in staffing as the centers work load increases or decreases, or as funds become available or dry up. Thus, in reality, only

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[1] S. R. Squire, Lieutenant, Supply Corps, United States Navy, "Automated Procurement at San Diego", Naval Supply Corps Newsletter, (December, 1969), pp. 8-9. An exception is the Naval Supply Center, San Diego, which has an automated small purchase program.

relaying current staffing levels becomes merely a statistical exercise, because the real control of manning level is accomplished at a different level. Appendix III (SA 80) under the section titled "Personnel" lists the authorized vs. the actual on-board count required to be submitted by Navy Field Activities.

Navy Supply System Command is desireous of obtaining and maintaining a data file containing information on manpower management and qualification of procurement personnel for each of the procurement organizations.[1] To establish such a data file entails acquiring and transmitting the raw data by the activities, and collecting, tabulating and displaying the information in the command data file. Accurate accumulation of such statistics becomes monumental even with the total use of automatic data processing equipment coupled with a properly designed procurement management information system. To accumulate this data manually entails the buyer and all other procurement personnel to keep an accurate count of each type of transaction as well as the time required to perform that particular function. With ADP equipment, each action on the part of procurement personnel is inputted into the data file for future recovery and display. It should be noted that

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[1] Gerard F. Argetsinger, Director Purchase Management Division, Naval Supply System Command, personal interview, Washington, D. C., July, 1970.

reporting requirement is in addition to the four basic reports required by the Armed Services Procurement Regulations, is also in addition to the information desired by Appendix IV (SUP 4235.2), and duplicates some of the information reported in Appendix III. Thus, the amount of the procurement management information desired by Naval Supply System Command is extremely detailed in scope and, no doubt, requires expenditure of additional resources, both monetary and personnel, in its accumulation and dissemination.

Navy procurement is big business. For example, in Fiscal Year 1969, procurement officers processed in excess of a half million procurement actions.[1] Although these figures are reported with the highest degree of accuracy, they do not accurately reflect the magnitude of the procurement managers work load. A procurement action count corresponds to a contract document count but not to a purchase request count. For example, the letting of a multi-billion dollar contract for a weapons system to a defense contractor would be counted as one procurement action; yet the writing of a purchase request for a bucket of gray paint also represents one procurement action. The weapon system contract is composed of numerous separate procurement requests, whereas the bucket of paint only contains

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[1] "Survey of Procurement Statistics," pp. 8-10.

one procurement request. Electronic Supply Office (ESO) in Chicago, which is an Inventory Control Point for the Navy, reported 25,473 procurement actions;[1] actually they processed 53,000 purchase requests.[2] These statistics are compared to the Naval Supply Center Oakland which had a reported action count of 118,163; this number indicates the procurement request count, because here each request is generally handled separately, resulting in individual procurement actions.[3] The Naval Supply Center Puget Sound reported 65,528 actions, but because similar purchase requests were grouped and counted as one procurement action, there were actually an average of 1.8 requisitions per action or 117,950 separate procurement requests actually processed.[4]

MILSCAP

So far two major problem areas have been discussed. These areas, both of which constantly require managements' attention, are (1) work load measurement and control, and (2) personnel-training, reporting, and control. But a major problem facing all procurement organizations within the

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[1] Ibid., p. 9.

[2] Charles G. Reynolds, "Motor: Procurement by Objectives Management by Exception," Navy Supply Corps Newsletter, (September, 1970), p. 16.

[3] "Survey of Procurement Statistics," p. 8.

[4] Ibid.

Department of Defense is the pending implementation of the Military Standard Contract Administration Procedures (MILSCAP). A brief description of the system, along with the inherent problems it will and has created for non-mechanized procurement organizations, will further demonstrate the scope of procurement difficulties.

Why MILSCAP?

At the present time, contracting officers, system inventory managers, project managers and others concerned about contractor performance on their applicable contracts, do not possess adequate control over the particular performance items they desire. If interested parties desire what might be considered an adequate or satisfactory control system, it requires a great expenditure of resources on their part, because any system they currently employ to achieve the required status must be basically a manual paper shuffling system. Field administrators are constantly being badgered with request for up-to-date status. The general consensus of the contracting officers is that field administrators are not as responsive as they would like. Because of the slow flow of the manually processed status, contracting officers are frequently required to use the telephone in order to acquire necessary information, and, even using the telephone, they are not always able to

communicate with the administrator who can be of most assistance. Therefore, the telephone is not always a good solution to the contracting officers' status problems. Letters, forms or other request for status forwarded by mail often take weeks to reach the desired administrator, thus drastically limiting the effectiveness of the field administrator to provide those individuals who desire information with immediate contract information status. Furthermore, even if communications were improved, the field administrator could not always provide the information requested because he lacks sufficient data. This lack of data might not be considered the fault of the administrator, but it does handicap him when he is trying to improve the contract administration function.

One of the largest problems formerly involved in government procurement that helped to bring about the present MILSCAP system was the wide diversification in the contract administration function that was performed by each service, resulting in much duplication and waste of time. The establishment of the Defense Contract Administration Service (DCAS) consolidated the field administration of contracts, which had previously been under the control of the various services. Until the establishment of DCAS, it was possible for contracts

to be administered by one particular service when the majority of the work being performed at the manufacturing plant was for another service. Sometimes more than one service might be in a plant instructing management on how they wanted particular work or inspections accomplished. This created problems in the coordination of information between the contractors and Government, and between the services as well, to say nothing of the duplication of effort on the Government's part. Even today, the services have difficulty communicating with each other because of dissimilarity in contract status language. MILSCAP proposes a common language in which the several services can communicate with each other; it also translates this language into a format which can use rapid communication techniques now available with current automatic data processing systems within DOD.

History of MILSCAP

The next question one might ask is what has been accomplished to date? MILSCAP is not a new program. It came as a spin-off of the Project 60 which established DCAS. During the course of Project 60 it was determined that a study group would be established to investigate the possibility of applying automatic data processing equipment and procedures to the function of contract administration. The study group published its

report in August of 1964, and indicated strongly that automation of the contract administration function was not only practicable and feasible, but was necessary if DCAS was to keep current with its assigned mission and not become bogged down in its own paper work. The Department of Defense appointed the Defense Supply Agency (DSA) as MILSCAP System Administrator and gave this agency the responsibility for developing the external flow of data requirements.[1] After a special committee of this agency studied the requirements for external flow of data, DSA published a proposed MILSCAP operating manual in October of 1965. A draft of the manual was distributed for comment to the various services, offices, field activities, and others concerned. The Navy consolidated its comments into a position statement and submitted this statement to DSA in February of 1966. After all other services and agencies concerned had submitted their comments, a series of meetings was held to draft a final version of the MILSCAP manual. Since then, this original manual has undergone numerous changes in an attempt to make the entire system more effective, and in fact a new manual was published in August, 1969,[2] which incorporated all of these

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[1] "The external flow of data" is the flow of contract, production, delivery, and financial information between field contract administration organizations and the activities performing a broad range of procurement, material management and financial accounting functions.

[2] Military Standard Contract Administration Procedures Manual.

changes. In May, 1967, DOD issued a directive[1] which formally established MILSCAP as a DOD Program. The Assistant Secretary of Defense for Installation and Logistics (ASDI&L) issued a memorandum in January of 1968, establishing various emplementation milestones and dates. At this time, the key milestone was for full implementation of MILSCAP on a DOD basis by July 1, 1970. This date has not remained firm and will be discussed later in this report.

Data Flow

Various people are involved in the administration of required data flow. Some of those who are required to get into the data flow network are the contractor, the contracting officer, the consignee, the contract administrator, the requisitioner, and the individual finance or paying officer, to name just a few. However, the primary data link is between the procurement contracting officer and the contract administrator at the contractor's plant. It is between these two parties that data and information must flow smoothly and rapidly, concerning such things as the contract itself, any changes that are made either at the plant or by the requisitioner, and the various forms and types of status necessary to keep all concerned current.

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[1] U. S., Department of Defense, "DOD Directive 4105.63, May, 1967", (Washington, D. C.: Government Printing Office, 1967).

Others in the data link who must be kept current are the requisitioner, who is concerned about the end item delivery date and the consignee (not always the purchasing officer), who is concerned about when the item is going to be received, and if receipt and acceptance information must be forwarded back to the contract administrator. Since eventually the contractor must be paid for his effort, and DCAS is the paying activity for contracts it administers, it, too, must be properly informed as to Government acceptance before it will mail the check to the contractor. The DCAS paying office, in turn, bills the various services and they in turn tabulate the data on the status of the various expenditures. Another vital data link that must not be neglected is between the contract administrator and the contractor himself. All of these people are tied together into a consolidated system under MILSCAP through the use of automated procedures as will be explained below.

Contract Abstract[1]

The contract abstract serves as the initial input into the system. This abstract is composed of several sets of punched data cards which incorporate information about the contract itself, and which must contain all essential elements which have been prescribed. For example, purchasing activities

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[1] MILSTRIP Manual, p. 4-1.

that assign large numbers of contracts for DCAS administration, i.e., more than 250 annually,[1] are required to prepare the punched cards and forward this information over the present communication system to the cognizant DCAS office. For those activities who assign few contracts, this requirement does not exist; they forward the hard copy as done presently. Problems immediately arise for these smaller activities whenever they desire status information on outstanding contracts. In order for them to inquire about the status of a contract, they must communicate in the prescribed computer format, and, conversely, when status information is received from the contract administrator, it will be in the coded format. Both actions necessitate time consuming transcripting for these smaller activities.

In order to better understand the MILSCAP system, a working knowledge of the contract abstract is mandatory. The abstract is the key to the system. The numerous cards required for the abstract can probably be obtained as a by-product of current ADP programs in the purchase organizations using flex-a-writers or optical image devices. If this form of automated equipment is not available the cards will have to be key punched after the fact from a copy of the contract itself.

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[1] James A. Morgart, Lieutenant Commander, Supply Corps, United States Navy, Assistant Coordinator MILSCAP Staff, Navy Material Command, personal interview, Washington, D. C., March 1970.

The contract abstract consists of the following cards: two administrative data cards, one accounting classification card, two supply data cards per line item, and one each of supply schedule data, service item, and control item serial cards.

Administrative Data Cards[1]

The two standard 80 column administrative data cards for each contract contain general information, such as the Procurement Instrument Identification Number (PIIN), the various address codes, the effective date, the paying office, the contracting plant, and the contract administrator. Another inportant item these data cards contain is the degree of authority which is to be delegated to the Administrative Contracting Officer (ACO). Through the use of codes, the purchasing office can assign full administration as outlined in ASPR[2] or limit the administrator to specific functions such as inspection and acceptance. Another important element of the administrative data cards is the alert codes, which inform the administrator that the contract contains unusual clauses or provisions, such as flight operations, or the administration of Government property.

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[1] MILSTRIP Manual, pp. 4-6 through 4-8.

[2] U. S. Department of Defense, "Defense Procurement Circular #58", (Washington, D. C.: Government Printing Office, 1969).

Accounting Classification Card[1]

One accounting classification card is prepared for each different set of accounting data specified in the contract. The accounting data is coupled with each line item as applicable by reference numbers.

Supply Data Cards[2]

The record of supply line item data consists of two data cards and contains information concerning the particular line items. It contains such things as the federal stock number, the manufacturer's part number (if applicable), a short noun description of the item, the quantity ordered, the unit, and the price. Other codes indicate quantity variance, acceptance site, and Free on Board (FOB) site.

Supply Schedules,[3] Service,[4] and Control Data Cards[5]

Other cards required in the abstract are the supply schedule data cards, which contain such information as the shipping destination, how they should be marked, the delivery dates, the quantity, and the requisition number. The service item data card is used in place of the supply item cards for

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[1] MILSTRIP Manual, pp. 4-7 and 4-8.

[2] Ibid., p. 4-8.

[3] Ibid., p. 4-10.

[4] Ibid., p. 4-12.

[5] Ibid., p. 5-1.

service contracts. The controlled item serial card is used for those items which require a special control and serial number for later identification.

Therefore, seven cards make up the basic contract abstract for one supply line item. These cards are prepared by the purchasing office and are then transmitted via the present DOD communication network to the proper administering office. A hard copy of the contract follows by mail.

Feedback Communication System

As with any system, communication must be in both directions. An adequate feedback network allows for communications between the contract administrator and purchasing office. This communication is again accomplished through a series of data cards. Any change in the abstract is accomplished through the use of a Modification[1] card. A Supplemental Data Request[2] card is generally the result of the administrator requiring additional information or approvals from the contracting officer. The administrator can also initiate a Revised Delivery Forecast[3] card which advises the contracting officer that the contractor is having some form of

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[1] *Ibid.*, p. 6-1.

[2] *Ibid.*, p. 9-1.

[3] Ibid., p. 12-1.

difficulty and will not be able to meet the specified delivery date. Through a series of codes, the administrator informs the contracting officer of the reason for the delay, the recommended action, and the revised delivery schedule, if one exists. There are cards for accelerating or deaccelerating the delivery date, for follow-up, and for correction, to name just a few. The _Shipment Notice_[1] card designed to replace the present distribution of the Material Inspection and Receiving Report (DD 250) is transmitted at the time the material is shipped.

When all action pertinent to the contract has been completed, including the final shipment of goods and the return of any Government property, a _Completion Status_ card is forwarded from the ACO to the PCO which allows for the closing of the files.

Communication Between Administrator and Consignee

The few major cards which remain pertain to the payment function. Simultaneous with the shipment notice card, a destination acceptance alert card is transmitted to the consignee if the contract indicates acceptance at the destination. This card is to advise the consignee that the shipment is on its way and that some form of action will be required on his part.

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[1] _Ibid._, p. 13-1.

Basically, this action is to inform the DCAS if the material has or has not been accepted by the Government. It is the acceptance report from the consignee which gives DCAS the authority to pay the contractors invoice when it is submitted. It is believed that the use of messages and the hi-speed data processing system, in lieu of the previously forwarded copies of DD 250, will prevent the Government from easing the prompt payment discounts it did in the past when hard copies of documents failed to reach the proper person within the DCAS organization.

Appendix V illustrates graphically the data card flow and major participants.

Standardization Actions

Because DCAS administers contracts from all armed services, the development of a common language became necessary. In order for MILSCAP to become an effective tool, standardization was not only desirable, but mandatory. The present trend is toward service-wide standardization of terms, and MILSCAP is just another of the many MIL type systems that is accomplishing this goal. Some of the more important of these other systems follow.

Procurement Instrument Identification Numbering (PIIN) and Contract Line Item Numbering (CLIN) were incorporated in

ASPR and went into effect July 1, 1966. The numbering of contracts and line items in a uniform manner was a great benefit not only to the various services and administrators, but also to the contractors as well, for it reduced the confusion that often surrounded long and complicated contract or purchase order numbers.

The uniform contract schedule format is an effort to establish a standard contract format which will be acceptable for all types of procurement activities. A quick look through a series of contracts from the various services reveals very little similiarity and consistency in the content of data elements. Sometimes a particular type of data element might be located in various parts of the contract and not even be consistent within a particular purchase organization. This inconsistency in the type and location of various data elements often causes lost time and confusion for those who handle the contract. The ASPR committee is currently working on this problem, but so far little progress has been accomplished. Their goals, however, are to standardize the contract forms in such a way as to be machine sensitive and allow for optical scanning techniques to convert the contract information into machine processable data.

Another important standardization system is being developed by DOD. Few people know it exists, but it will affect all DOD activities and those with whom DOD does business. The Defense Organizational Entity System (DOES) is still in the planning stage but will consist of a six-digit alpha numeric code which will identify every organizational unit or entity within DOD. The DOES codes will replace currently assigned codes, and, in addition, code every manufacturer or business activity which does business with DOD.

Further standardization of data elements is necessary to properly interface with the flow of data between the various MILS; i.e., MILSTRIP, MILSTRAP and others in current use or planned. It is imperative that the same data be consistent in all of the systems.

The authors of MILSCAP anticipate that a great deal of standardization will be accomplished prior to the implementation date, but, nevertheless, contracts will still exist using nonstandard symbols and codes which will have to be recoded and placed into the system. The Assistant Secretary of Defense (Comptroller) has the responsibility for the DOES coding and uniform application of the data elements.

MILSCAP Difficulties

As demonstrated, MILSCAP relies exclusively upon automated means of communication between contracting identities. Two problems immediately surface upon implementation of this management information system. First the problem of creating the abstracts. The second problem is the amount of effort and resources that will be required by non-mechanized procurement activities to code and decode data so that they can communicate with the contract administration activity.

Representatives of the Navy Purchasing Office Washington,[1] Naval Supply System Command,[2] express concern about the amount of effort and resources it will require to process abstract cards. For activities having automatic data processing or electronic account machines readily available, MILSCAP will mean that their procurement management information systems, if any, will have to be modified. In some cases completely new programs will have to be written to interface with MILSCAP. Likewise, all future Navy-wide procurement management information systems will have to accomodate MILSCAP's requirements.

Problems will be even greater for the smaller procurement activities without ADP and EAM equipment. They will be forced

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[1] Ward, Interview.

[2] Joseph P. O'Donnell, Procurement Analyst, Naval Supply System Command, personal interview, Washington, D. C., February, 1970.

to code all of the required data into message format for transmission to the appropriate DCAS. Status from the DCAS will be received in the same message format and will require decoding. Many procurement managers feel the increased effort required to code and decode will be time consuming and nonproductive. In their opinion, the liabilities of MILSCAP far outweigh any expected benefits.

The author doesn't agree with these critics. When any new management systems are introduced, they appear to create more work than benefits. People, in general, resent change, and MILSCAP is something new, that is, it is a new way of processing paperwork during the contract administration functions. After the system has been in effect five or ten years, these same critics will wonder how the job was accomplished in the old days.

CHAPTER IV

CURRENT PROCUREMENT INFORMATION SYSTEMS

Introduction

The Navy does not currently possess one universal procurement management information system. Each procurement organization develops a system tailored to its own needs. Although there are therefore many individual procurement management information systems in existence, a careful look at one from each level in the chain of command will demonstrate the similarity of information deemed important to properly manage and control an organization. The procurement management information system employed by the Navy Supply System Command, Naval Material Command, Electronics Supply Office, and Naval Supply Center Long Beach will be discussed. Chapter V constitutes a model developed by the author for an automated procurement management information system taking into consideration the optimum characteristics of an effective system; (i.e., management by exception, interface with present

automated management system (MILSTRIP, MILSTRAP), current requisition status, etc.).

Naval Supply System Command

The Naval Supply System Command accumulates the statistical input for its management information system through two forms which are submitted by the activities it manages. They are: the Monthly Procurement Summary of Actions under $10,000 By Purchase Office (DD Form 1057)(Appendix I)[1] and the Purchase Statistics Report (NAV S & A Form 80)(Appendix II). However, as detailed as the present reporting is, it does not supply the type of information this command feels it needs to adequately evaluate and control its subordinate activities. Therefore, the present reporting system has been modified to include additional information on (1) Procurement processing or lead time, (2) Measurement of buyer performance, (3) Work load, (field system wide) and (4) Level of training at each procurement activity. (Appendix VI).

Buyer Performance

Several methods have been employed in an attempt to measure buyer performance. Work standards have been developed for various phases of the procurement cycle. For the small purchase operation realistic standards have been established

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[1] Argetsinger, Interview.

through the (DIMES)[1] systems of work measurements, that is, definite time limits have been established for the placement of calls against the basic ordering agreement. However, it is difficult to assign this kind of work standard for the placement of complicated procurements because this is not a repetitive type function like small purchase operations. Since there are no accurate work measuring tools for this kind of function, the alternative method for acquiring the needed statistics is by modifying of the present Resource Management System (RMS) which is a financial control management information system. Under this system, procurement managers charge labor costs against the various categories listed in Figure 11.

1. Purchase Document Control
2. Buying Operations
3. Document Production
4. Bid Operations
5. Other Clerical Effort
6. Procurement Management
7. Contract Administration
8. Contract Administration Management

Figure 11
Purchase Operations Cost Centers

* U. S. Department of Defense, _Defense Integrated Management Engineering System (Dimes)_ in _DOD Industrial-Type Activities_, (Washington, D. C.: Government Printing Office, 1965), Chapter V.

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[1] U. S. Department of Defense, _Defense Integrated Management Engineering System (Dimes)_ in _DOD Industrial-Type Activities_, (Washington, D. C.: Government Printing Office, 1965).

Purchase Document Control[1]

The cost involved in processing incoming purchase requests and other documents entering the purchase organization is included in this category. However, in addition to this information, the Naval Supply System Command desires a count of individual purchase requests broken down as to small purchases (including purchase order, imprest fund transactions, delivery orders, calls against basic purchase agreements, orders against General Service Administration/Federal Supply Schedules, and indefinite delivery) into either automated or manual means of execution. Further breakdown of orders under basic ordering agreements (BOA), both automated and manual, is desired, as well as a breakdown of the large purchase count (including total receipts for processing of IFB's, RFP's, RFQ's, letter contracts, etc.), and a separate report from the Ships Part Control Center concerning the amount of ammunition processed.

Buying Operations[2]

This cost center account accumulates costs incurred in the buying process prior to the preparation and issuance of bids or requests for proposals or quotations, during the solicitation phase, and after receipt of the bids, proposals or quotations. The count of completed individual work units

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[1] _Ibid._

[2] _Ibid._

is accomplished as they are released to the document preparation division. This counting of documents is a modification of the basic RMS system. Appendix VII lists the required format for reporting the data on purchase request count and man-hours expended under this particular cost center. Appendix VIII is the required format for reporting response/workload statistics; it is also a modification of the basic RMS system.

Document Production[1]

Necessary clerical effort that is related in the preparation and production of IFB/s and RFQ's, plus the preparation and production of all necessary contractural paper work concerning the contract, awards, acceptances and purchase orders is charged against this cost center. Figure 12 below indicates the modification of the basic management system (RMS) as to the breakdown and the point of count as it is released from the purchase document production component, which is in addition to the basic management information system.

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[1] U. S. Department of the Navy, NAVSUP Management Handbook, Publication 285, (Washington, D. C.: Government Printing Office, 1966), Chapter 5.

Method	Completions (Documents)	Man Hours Expended on Completions (M/HS)
A. Small Purchase and orders against BOA's	65	15
B. Large Purchases	20	275

Figure 12
Report Format for Document Production

Bid Operations, Other Clerical Effort, Procurement Management[1]

Bid operations, other clerical effort, and procurement management are the remaining cost centers in the buying operation. Each of these cost centers does not process individual units of work, but rather, perform a variety of operations. NAVSUP's reporting system, therefore, accumulates the dollar amount charged for each of these operations for use in their management information systems.

Contract Administration[2]

The Contract Administration cost center accumulates cost incurred which are related to the contract administration function, that is, from the time of award through contract completion. It includes such items as: assuring requirement, obtaining and analyzing contractor performance data, required paperwork, issuing change order, and many other related functions. The number of modifications, supplemental agreements, change

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[1] _Ibid._

[2] _Ibid._

orders, and others (including calls, letters, etc., not a complete work unit) are counted and submitted, in addition to the man hours of labor expended to be inputted into the management information system.

Naval Material Command

The Naval Material Command, which is charged with the conduct of the total Navy Material mission, consists of six subordinate commands:

Air Systems Command
Ship Systems Command
Ordnance Systems Command
Electronics Systems Command
Supply Systems Command
Facilities Engineering Command.

"Also executive direction of major project is provided by Project Managers under the Chief of Naval Material."[1]

The Navy Material Command has developed a Procurement Management System. It uses as its basic input to the system the DD Form 1057 (Appendix I) and DD Form 350 (Appendix II), both of which are source documents. This system is designed by developing concepts and approaches so that it will exploit the capabilities of the electronic computer rather than being limited by the capabilities of electronic accounting machines.

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[1] U. S. Department of Defense, Procurement Training Manual, (Washington, D. C.: Department of Defense, 1968 Ed.), p. I-9.

The difference between the two systems is in the way the equipment performs its task. Computers are primarily electronic devices which have the capability of performing rapid arithmetic calculations with great flexibility in programming; the electronic accounting machine devices are primarily concerned with tabulating and storing information with limited speed and storage capacity.[1]

Naval Material Command anticipates using the data and information developed by the expanded[2] Procurement Management System to meet their commitments for reports to the Department of Defense and for statistics for publication and reference type reports for internal Navy use; (e.g., for Small Business Officers in the office of the Assistant Secretary of the Navy for Installation and Logistics and Naval Material Command or for responses to Congressional inquiries).

Navy Material Command has devoted considerable thought to the question of how best to use the greatly expanded capability of the electronic computer that is generated by a Master Automatic Data Processing Program. The initial system design will provide the program to generate groupings or families of reports relating to procurement management.

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[1] Richard W. Brightman, Bernard J. Luskin and Theodore Tuton, Data Processing for Decision-Making, (New York: The Macmillan Company, 1968), p. 114.

[2] Referred to as ADP Master Program.

Examples of such families or groupings are: forecasts and trends; quality of performance; work measurement and staffing; and problem identification. Comparative computer print out would be generated for each of the Naval Commands based on dollar volume, claimant programs (such as those listed in Appendix IX), and small business and would be useful for forecasting and trend analysis. How well the various commands perform the buy function is also of interest to Naval Material Command and their procurement information system is designed to give information as to the quality of performance, the extent of competition, the method of procurement, and the number and nature of contract modifications under various kinds of procurement actions. Work measurement and staffing information is obtained from a break down of dollar value and number of procurement actions for each of the Navy System Commands; (e.g., Air, ORD, SUP), plus additional data elements such as negotiation authority and contract type. Another area of concern of Naval Material Command is that of problem identification. Problems concerning either the actual operation of one of the Navy procurement organizations or problems associated with a particular contract; (e.g., excess profit) are brought to the forefront by either an examination of the

statistical data or by matters brought to command attention by formal inquiry.

The computer application for an effective Procurement management information system for Naval Material Command related to an Automatic Data Processing Master Program can best be demonstrated by specific situations. A number of situations illustrating the function of the system are set forth in the paragraphs which follow.

Trends

Naval Material Command desires to compare the type of contracts; (e.g., fixed prices, cost, incentive, etc.) by the various Naval system commands, over at least a three-year period in order to determine if there have been any significant trends. Information is furnished by inquiry to the computer according to contract type and system command.

Quality of Performance

Naval Material Command continues this evaluation into the use of negotiation authority.

> "Purchases of and contracts for property or services must generally be made by formal advertising (ASPR 3-200). But the law provides in procurements by the Army, Navy, Air Force, Coast Guard, and NASA that negotiation may be used in 17 specific situations if advertising is not practicable and feasible (10 U. S. Code 2304)."[1]

Attention has been recently focused on exception fourteen,

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[1] 1969 Government Contracts Guide, (New York: Commerce Clearing House, Inc., 1969), p. 205, paragraph 810.

which deals with technical or special supplies.

> Purchases and contracts may be negotiated without formal advertising for technical or special property which requires substantial initial investment or an extended period of preparation for manufacture and for which advertising would be likely to result in higher cost because of duplication of investment or would unduly delay procurement because of duplication of necessary preparation......
>
> This type of procurement generally involves cases in which (1) high starting costs have already been paid for by the Government or the supplier; (2) preliminary engineering and development work is involved which would not be usable by or useful to another supplier; (3) elaborate special tooling has already been acquired; (4) substantial time and effort has already been expended in developing a prototype or an initial production model; or (5) important design changes will occur which will continue to be developed by the supplier (ASPR 3-214).[1]

The management information system will also provide a list of contractors with the respective number and dollar value of the contracts they have been awarded or a list with each contractor showing the amount and date of particular contract rewards. Award dates are useful in that they may indicate if requirements were staggered in such a way that only the contractor in production could or would be able to meet the delivery dates. Amendments sometimes indicate that specifications were hastily drawn or that requirements were incomplete. This could indicate that even the pre-selected contractor could not possibly meet the required delivery date which was used to justify the award.

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[1] Ibid. p. 209.

Work Measurement and Staffing

The current thresholds for Advance Procurement Plans is $300,000 for Research and Development Contracts, and $1,000,000 for production contracts.

> "Advance procurement planning(APP) is a method used by DOD to chart the major procurement programs contemplated by it over their life-cycle and is keyed to the DOD Five Year Force Structure and Financial Program. Its objective is to provide a plan for the procurement of the elements of any proposed object at the time they will be needed and at the lowest cost to the Government. It is applicable to both developmental and production procurements, to hardware, supplies and equipment, and to any items which require formal, detailed and complex planning."[1]

The information system is used to furnish totals submitted by various system commands on all letter contracts and definitive contract awards above these prescribed levels according to the procurement method utilized and negotiation authority; thus, it provides a general picture of the Advance Procurement Plan Workload. A quick review of the number of Advance Procurement Plans submitted by each system command for approval would indicate whether there is a gap between potential and actual in this particular program. From the data, estimates could be made on the number of Advance Procurement Plans an individual could accomplish for a given time period.

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[1] Ibid., p. 25, paragraph 288.

Problem Identification

Frequently, questions are raised pertaining to a particular type or classification of clauses found in a Navy contract. These individual inquiries are many times the forerunner of more exhaustive requests to follow. A properly designed information system will have the ability to provide the necessary information requested from various aspects such as: (1) 100 top contractors, (2) individual contractors selected at random, (3) type of contract, and (4) method of procurement; to name just a few. Armed with such information supplied by the procurement management information system the Navy Material Command is in a better position to take action rather than await directives or suggestions from higher authority, be it the Secretary of the Navy, Defense, or Congress.

Purchase Organization Profits

The proposed master plan utilizing the new automatic data processing system will be used for the development and maintenance of purchase department or organization profiles located within the various system commands. These profiles will include, but will not be limited to, such information as organizational charts, staffing, productivity, and key problem areas.

Productivity analysis depends to a large extent on work measurement standards and the establishment of these standards. Comparative data over a three or four year period for each system command using such data elements as methods of procurement, negotiation authority, and kinds of procurement action should develop meaningful standards. Attempts have been made to weigh various types of procurement actions (more time and effort is involved with placement of a major weapons system contract than ordering a small replacement part utilizing small purchase procedures) against the volume of purchases and the number of people within the organization. Figure 13 is a correlation analysis prepared to indicate these relationships.

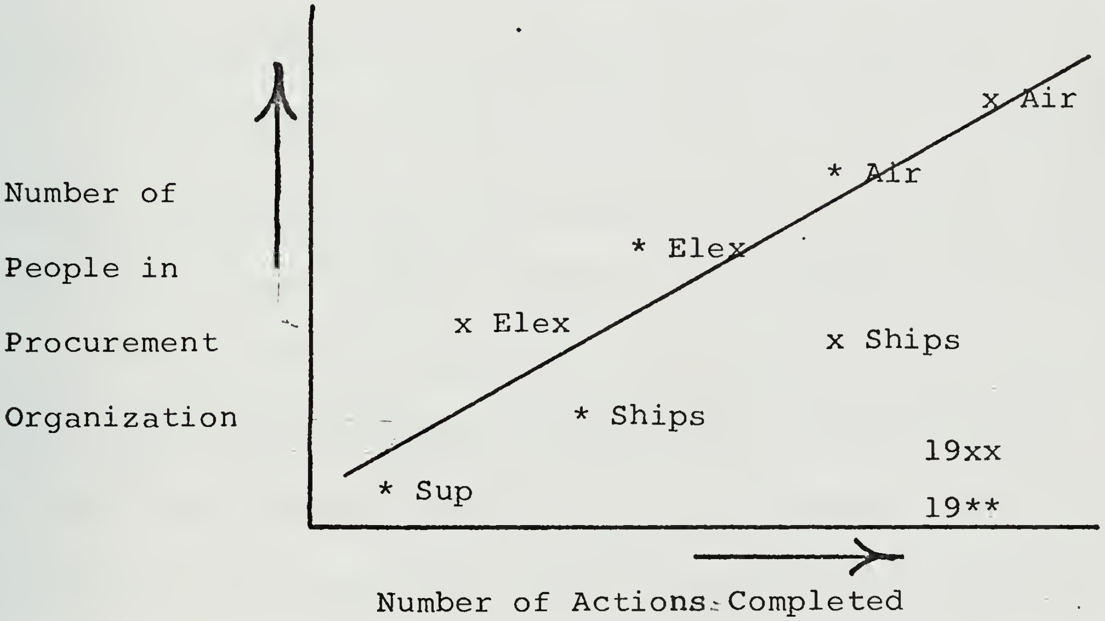

Figure 13
Correlation Analysis

* Tom Cambell, Lieutenant, Supply Corps, United States Navy, Naval Material Command, personal interview, Washington, D. C., August, 1970.

Quality of Statistical Input Data

The quality of input data taken from the two basic input documents, the DD Form 350 and DD Form 1057, which have always served as the basis for periodic reports, will assume more important roles as the Naval Material Command intends to utilize this data for management purposes. At the present time, the data is used only for statistical purposes, but when the system becomes operational, it will form the basis for measurement of performance. Accuracy will, no doubt, improve as it assumes a higher role of importance.

Appendix X is a listing of the various data processing runs supported by about 105 computer programs necessary to provide the periodic statistics for higher authority.

Lieutenant Tom Cambell indicated that one of the biggest problems facing his particular organization is that of data collection.[1] Not knowing if the DD 350 (Appendix II) has or has not been submitted makes this task particularly difficult. Also, there is no method of checking the validity of the DD 350's that are submitted. The major commands submit only one DD 1057 after they have consolidated the data from its various components. This consolidation process is time consuming and frequently means delays in the master report.

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[1] Lieutenant Tom Cambell, Supply Corps, United States Navy, Naval Material Command, personal interview, Washington, D. C., August, 1970.

According to Lieutenant Cambell, a second problem that faces his organization concerns costs. He indicated that the cost of computer time and the people required to gather the data amounts to approximately $300,000 annually. Even with this expenditure of money, the accuracy of the report is doubtful, because estimated prices are used instead of actual prices.

One remaining problem is the difficulty in determining whether the contracting activity in the DCAS has filed the necessary reports and paper work.

Electronic Supply Office

The Navy Electronic Supply Office (ESO) implementated, in May of 1970, a procurement management information system under the acronym of MOTOR (Monthly Throughput Observation Report). This system utilizes the concepts of procurement by objectives and management by exception.[1]

In fiscal year 1969, ESO awarded approximately 53,000 purchase requests worth better than 73 million dollars. This meant that at any one time there were approximately eight to ten thousand purchase requests in process within the procurement department or somewhere else in ESO. Because ESO was limited by manual operations, statistical samples were taken and analyzed to give work load processing times. As mentioned

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[1] Reynolds, "Procurement by Objectives", pp. 16-19.

earlier, this was a time consuming process, and the information obtained was obsolete by the time it was generated. And, more important, exceptions to normal processing time frames were only discovered after the fact, not during the process.

Mr. Charles Reynolds states in his article that MOTOR indicates exceptions to the normal processing time frames and makes it possible for management to pinpoint the bottleneck where these exceptions are occuring by bringing only the exceptions to managers' attention. The ESO procurement management information system observes the average age of requisitions, pinpoints where excessive delays occur, and indicates the average age of requisitions that are back ordered for an excessive period of time. The system also indicates on an exception basis individual purchase requests that exceed normal award time frames. Armed with this information, managers can determine corrective action and reduce the throughput time which means less cost and faster service to customers. MOTOR employs a major computer system utilizing real-time concepts and requires approximately two hours of processing time monthly to generate the required reports. The system uses basically the standard management systems now in effect (MILSTEP, MILSTRIP) for the data base. By a process of updating data in one particular data element block, a comparison can readily be obtained between

the data of current and past actions, including their dates of initial receipt and their throughput time frame.

Currently, the system is not producing 100 per cent accurate information, due, basically, to operator input mistakes and machine errors. However, problem areas have been located and increased quality control efforts are in effect. "By highlighting the exceptions, MOTOR enables ESO management to make better and more responsive support decisions."[1]

Naval Supply Center Long Beach[2]

Naval Supply Center Long Beach, being one of the high volume purchasing activities action-wise (the fourth largest in the Navy in Fiscal Year '69)[3], found it advantageous to automate certain statistical and reporting management information functions. Lieutenant Robert Crooks indicates that before this an ever-increasing amount of buyers' time was being consumed in the manual reporting of individual procurement actions. They had problems compiling all of the buyers' reports as well as stratifying the data for the Monthly Procurement Summary of Actions under $10,000 (DD Form 1057 Appendix I, and the Purchase Statistics, NAVSANDA Form 80, Appendix III).

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[1] _Ibid._, p. 18.

[2] Robert Crooks, Jr. Lieutenant, Supply Corps, United States Navy, "The Name of the Game in Purchase Control," _Naval Supply Corps Newsletter_, (March, 1970), pp. 24-25.

[3] "Survey of Procurement Statistics," pp. 9-10.

Subsequently, Naval Supply Center Long Beach developed a procurement management information system that would give management a mechanized listing of all data elements necessary to complete Appendix I and III. The basic data input for the system is contained on a locally generated keypunch guide called "Purchase Request Traveler Card", (Appendix XI). Through the various computer programs, all necessary information is extracted and summarized for the end of the month reports. An obvious benefit of this particular informations system is that it reduces the clerical effort required for monthly reports; in fact it frees two people for assignment to other functions.[1] Purchase organizations like the Naval Supply Center Long Beach normally consist of approximately 45 employees; thus, having the capability to reduce the size of the organization by two in the case of a reduced work load or to gain two employees when the work load is increased is a tangible benefit of a procurement management information system of this type.

The procurement management information system employed by the Naval Supply Center Long Beach has an output of six separate management reports or tools as a result of input data from the Purchase Traveler Card and an additional input control card. These reports consist of the (1) Daily List of Completed

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[1] Crooks, "Name of the Game," p. 24.

Purchase Actions, (2) Daily Buyers' Report, (3) Requisition History and Status File Feedback, (4) Daily Backlog Report, (5) Buyer Backlog Report and (6) Weekly Aging Report.[1]

A brief description of each of these reports will indicate the type of information Naval Supply Center Long Beach considers necessary to achieve effective appraisal and control of the procurement function.

Daily List of Completed Purchase Actions

This listing provides such data as the requisition number, the purchase number (PIIN or imprest fund number, as applicable), the requested delivery date, the delivery date obtained, the priority and the name of the manufacturer. Since this listing is a current report of completed requisitions, it is provided routinely to the Shipyard and to other customers upon request.

This listing serves two purposes. It is utilized by the Purchase Department in lieu of a manual log for purchase actions. And, coupled with Naval Supply Center Long Beach's unique PIIN numbering system, it provides an excellent feedback for status and buyer implication if any administrative action should be necessary.

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[1] *Ibid.*

Daily Buyer's Report

This report provides management with the number of completed actions listed by type of actions; i.e., purchase order, blanket purchase agreement, imprest fund, etc., for incorporation into the DIMES reporting system.[1] It also provides a ready guide to the Purchase Department management team by informally reviewing the production rate of buyers.

Requisition History and Status File Feedback

Simultaneously with the preceeding two reports, the computer furnishes status for the requisition history and status file which is an integral portion of the Uniform Automatic Data Processing System for stock points. This provides the Procurement Instrument Identification Number and delivery date obtained from the buyer for automatic status to the requisitioner.

Daily Backlog Report

This report is primarily furnished to the Shipyard, and lists by type code, a code that indicates to the Shipyard whether it is a production, overhead, or shop store procurement. It also lists this information by requisition number, so that at any point in time the Shipyard knows exactly which documents are in procurement and can expedite action should the occasion

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[1] Defense Integrated Management Engineering System.

arise.

In addition to the daily reports, two weekly reports are made. These are primarily used for planning purposes as opposed to the response oriented reports explained above.

Buyer Backlog Report

This report lists by individual buyer the number of line items currently in process and also the requisition number of the requirement for these items. Individual listings are used to equalize workload and control distribution of documents.

Weekly Aging Report

This report is probably the most important single output of the computer with respect to the management control system. This report lists the age of the oldest document in the Department and progresses forward to the newest document. It shows the requisition number, the buyer who has it, and the capability of reflecting if a formal quote is pending.

The Daily Completed History records are accumulated into a Monthly History Record, which is broken down by requisition and purchase order numbers. In addition to eliminating manual logs for these two items, the requisition purchase history is provided to the Customer Services Division for their efforts in follow-up action for their customers.[1]

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[1] Crooks, "The Name of the Game", p. 25.

LT. Crooks feels the management information system employed in the procurement organization at Naval Supply Center Long Beach provides an invaluable management tool having direct benefit for managers within the procurement organization as well as customers. He also states, "In the current environment, it is extremely important to know where each and every document is at any point in time, and, once completed, what was done with it and why, how long it took, and the ultimate conclusion of the transactions."[1]

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[1] Ibid.

CHAPTER V

PROPOSED MODEL

Introduction

As mentioned earlier, a Navy wide procurement management information does not exist. Because of the wide diversity of functions and operational commitments manifested by the various system commands of the Navy, it also seems unlikely that a Navy wide procurement information system will ever become a reality. Not until the state of the art of computer technology and the resources available from Congress allow for the exchange of data tapes or the transmission of data over some form of communication link, either wire or air, will an effective management information system be practical and meaningful for the Navy establishment.

The Navy field purchase organization, composed of the activities listed in Figure 9 is a fruitful area for the design of an effective procurement management information system.[1] These activities are under the operational control of

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[1] "Survey of Procurement Statistics", p. 6.

the Naval Supply Systems Command. The Supply Systems Command ranks second in total dollar expended but first in number of actions as illustrated by Figure 9.

Statistics (Figure 8 and 9) readily reveal that the Supply System Command could benefit from a uniform information system allowing for the transfer of information from remote activities to the headquarters and at the same time providing meaningful management to that activity itself. Most of the activities composing the field purchasing systems have computer complexes of varying size and capabilities. Therefore, a procurement management information system would have to be designed which had the capacity and time available for computer work and which also could meet the needs of the procurement organization.

Costing-out of an information system is difficult because, although actual man hours expended can be readily estimated, this expenditure must be balanced against the benefits of the system. To place a dollar and cents price tag on how much an organization is benefitting from an improved management tool is difficult. One of the primary reasons for automating is to generate savings; yet often after functions are automatic, a supervisor will still attempt to maintain his existing staff, indicating the automated function required

little of his time or resources.

Data-file Creation and Maintenance

Information systems are based on data files. These files are a collection of data arranged on some form of computer storage device; (e.g., magnetic tape, disk or drum). For example, the data file for a procurement information system would contain such items as the purchase instrument identification number, delivery dates, bid opening dates, etc., to name just a few. Establishment of a data file is costly and maintenance requires expenditure of resources as long as the system is in existance.

Maintaining a data-file also requires established procedures for data gathering and input. If departments other than purchase are involved, more effort has to be expended in developing and implementing data collection procedures. Automated systems also must have well-defined quality control procedures for assuring that data will be introduced correctly into the system. While it is possible to write a computer program to validate certain data elements, quality control is basically a manual operation.[1]

Output Results From Input Data

The old saying is very applicable when discussing the benefits of computers, "garbage in, garbage out". Meaningful

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[1] Arthur D. Little, Inc., Information Handling Capabilities, "Preparation Processing Analysis", (General Memorandum No. 35, March, 1963), p. 4.

data cannot be obtained from the system unless it has previously been inputted into the computer in some meaningful form. One of the rules of designing an information system is that it is impossible to determine what outputs are to be produced without first determining how much it is going to cost to introduce the data elements necessary to produce the desired output.

Codes

Most information systems are based on a large number of codes. Codes are a form of short hand enabling the communication of information with a minimum of numbers or characters, and are used to identify problems, shipping methods, procurement methods, and the like. The extensive use of codes is one characteristic of information systems.

The primary reason codes are employed is to decrease keypunch time; also there is an 80 character limitation on an EAM card. It is much faster and easier to keypunch 67468 than "Timeless Tire Auto Industries, Inc." Computers, themselves, function faster because they are based upon coded information.

An information system design should be based upon established codes; thus, re-education is reduced, as well as errors. Presently, each of the various automated systems employed by the Navy; (e.g., MILSTRIP, MILSCAP,[1]) has its own

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[1] Military Standard Contract Administration Procedures.

set of codes. One of the codes used by both systems is that of the Code to MFRS.[1] These codes identify vendors for accounting and identification purposes.

Operating Personnel

Procurement information systems should be designed for people; they should assist the operators.

Model

The author, upon learning of his candidacy for post-graduate school and with the approval of the director of procurement, Naval Supply Center Puget Sound, began work on a research project related to procurement management information systems, having in mind a thesis project, which would at the same time provide a useful management tool for the Navy Department. The research project was initiated at this time because of the availability of clerical and support personnel, as well as a computer analyst to write computer programs for the models developed.

ASPIRE (Automated Status of Purchase Information Recorded Electronically) resulted from the research project and provided a vehicle to fill the gap created by the lack of adequate management information with which to control and appraise the effectiveness of a procurement organization in the Navy

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[1] U. S. Department of the Army, Federal Supply Code for Manufacturers United States and Canada, Cataloging Handbook H 4-1, (Washington, D. C.: Government Printing Office, 1967).

field purchase organization. Procurement organizations without the aid of a computer have definite problems and limitation as to the amount and timeliness of the management information for planning, control, or operations they are able to accumulate.

Problems

One problem faced by managers is determining procurement lead time, that is, the length of time required to process a requisition from the moment a request is received until this order or contract is placed. This particular information is required by higher command. And, without the use of some form of automated system, supplying of this information requires the expenditure of additional resources.[1] This is because without the use of a computer, the method of determining response time is really an after-the-fact audit. Such an audit means additional and duplicated effort after the information has been extracted during performance, and there is a build-in time lag. Often months lapse between audits; thus, the manager is without current information as to how well or how poorly his organization is performing.

Manual systems employ some forms of tickler file to retain control and status of procurement request progress through the buying operation. As the procurement request progresses from stage to stage, the status information is

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[1] Ward, Interview.

retained in a file to answer any questions or inquiries. Retention of this completed information means that in order to remove a set of documents that have been completed over a specific length of time, one must search through the complete status file.

Requisition aging presents the greatest challenge to the procurement manager. Requisition aging means that the procurement action is being delayed for a multitude of reasons and could mean that the material will not meet the required delivery date. Without the benefit of an automated information system, compiling aging data is difficult and time consuming.

Still another problem facing the manager is that of an effective procurement history file. Navy directives have indicated that procurement organizations must maintain and utilize procurement history files.[1] These files serve as guide lines when buying like or similar material and permit price comparisons between quoted prices and former purchase prices. A major problem is properly maintaining and updating these files to include the latest information. A truly integrated information system would also have the capability of

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[1] U. S. Department of the Navy, NAVSUPNOTE 4200 of 25 April 1968, Validation of Price Estimates/Price Histories Received with Purchase Requisitions, (Washington, D. C.: Naval Supply System Command, 1968).

U. S. Department of the Navy, NAVSUPNOTE 4200 of 7 Feb. 69, Retention of Procurement History, (Washington, D. C.: Naval Supply Systems Command, 1969).

introducing market conditions and trends on the various commodities to give a truer picture of how much the material or service should cost.

If an extensive cross reference tickler file is not maintained, there is no way of locating a particular procurement action request, utilizing the procurement request number only once the file copy with this number and procurement instrument identification number has been destroyed. Completed procurement actions are filed according to their Purchase Instrument Identification Number. Thus, if a particular ship or naval activity desires status on one of their requisitions and they only have the requisition number, the procurement organization could not possibly comply without an extensive file search, which would be expensive and then not entirely sure of success.

A major problem with most supply centers is getting procurement requests into the requisition history and status file. (A uniform computer program utilized by all supply activities in the Navy is used to process normal issues from stock.) Often a procurement activity, if it does have an automated information system, functions as a separate unit and is not integrated through the MILSTRIP procedures into the Navy wide logistics system.[1]

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[1] Robert Kreimer, personal interview, Ft. Lee, Virginia, October, 1968.

Areas of Improved Management

Information systems utilizing the computer and EAM procedures have capability for the collection of statistical data automatically which is vastly superior to manual systems. Statistical data is important to managers, because it is through the statistical data they submit to higher authorities that staffing and operational decisions are made. Often the task of collecting and forwarding the data is accomplished by lower paid employees with limited experience and knowledge of the importance of the figures generated. Thus, a system developed around the required statistical data would be of great benefit to the procurement managers.

Another benefit of a procurement management information system would be the automatic input of procurement status in the various Navy wide systems listed below:

Military Standard Requisitioning and Issue Procedures (MILSTRIP)[1].

Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP)[2].

Military Standard Contract Administration Procedures (MILSCAP)[3].

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[1] Military Standard Requisitioning and Issue Procedures (MILSTRIP) establishes procedures for the way material is requisitioned and issued.

[2] Military Standard Transaction Reporting and Accounting Procedures (MILSTRAP) reports actions that increase or decrease the stock position of an item to the inventory control point.

[3] Military Standard Contract Administration Procedures.

Uniform Material Movement and Issue Priority System (UMMIPS)[1].

Automatic Digital Network (AUTODIN)[2].

Locally Generated Status Systems

The real objective on any management information system is to provide the manager with an effective tool, thus enabling him to better manage or allocate his human resources. Effective management of buyers is accomplished by effective work load distribution, accompanied by knowledge of each requisition that has been assigned to the buyer. If the buyer is proceeding with the procurement in an orderly fashion, no action is necessary on the part of the manager. However, a good system sill indicate any difficulties that should be brought to the attention of a supervisor.

System Objectives

For a Navy field purchasing activity, the objectives of a procurement management information system can be broken down into (1) the rapid accumulation and accessibility of data, and (2) a provision for direct automatic input to various other

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[1] Uniform Material Movement and Issue Priority System (UMMIPS) is a DOD system designed to assure that requirements are processed in accordance with established time frames. See Appendix XIX.

[2] Automatic Digital Network (AUTODIN) is a communication network that provides high-speed data transmission facilities between the data processing system of DOD activities.

systems and subsystems as illustrated in Figure 15. Subordinate objectives under the broad objective of rapid accumulation and accessibility of data include the following:

- Evaluate buyer performance.
- Reduce cost of the commodities or items being purchased.
- Provide workload scheduling tools.
- Eliminate manual files.
- Improve report accuracy.
- Optimize customer status.

The system objective of providing procurement statistics in direct computer print-out format to other Navy wide systems is only now performed by a few out of the many activities composing the field purchasing activity. It is through these data links that errors are reduced and individual workloads lightened as the process of transcription and subsequent keypunch operations are eliminated.

System Design:

The model has been designed around the capabilities of an IBM 1410 computer. Figure 14 below is a diagram of the basic model with input from the purchasing department and resultant daily, weekly, monthly and quarterly output reports.

Purchase Dept.

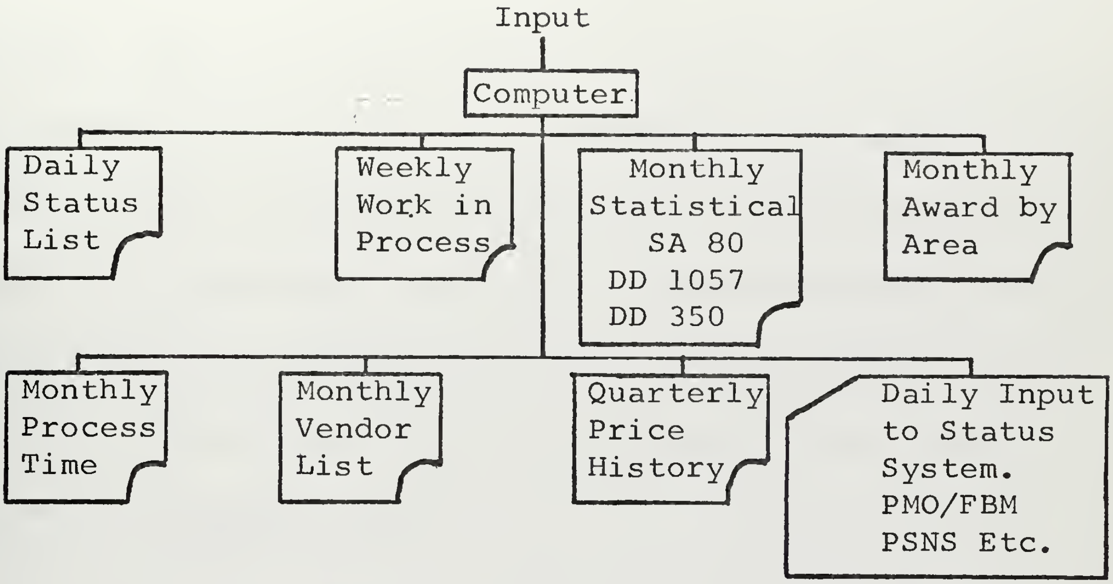

Figure 14
Proposed System

Another graphic representation of the model is Figure 15. The computer, on a daily basis, processes the purchase input cards (Appendix XII), and, in conjunction with the previous day's daily master listing, generates the daily status list. It also generates daily properly punched EAM cards to feed customers status which is computable into their data processing system. Also, the computer generates a new and updated daily master file. On a weekly basis, the system generates the weekly Work in Process Report.

On a monthly basis, the daily master file undergoes a purge or wiping clean of all completed procurements, and this forms the data base for monthly reports. Reports that are

generated monthly are: (1) statistical, (2) awards by area, (3) purchase processing time, (4) price history, (5) monthly completed, and (6) a new updated daily master file. Each of these reports will be discussed separately. In support of the proposed model, a vendor identification file was created. In doing this, traditional electronic accounting machine equipment and procedures were used, since this function requires only processing and sorting to develop the vendor lists, and no computing. (Appendix XIII)

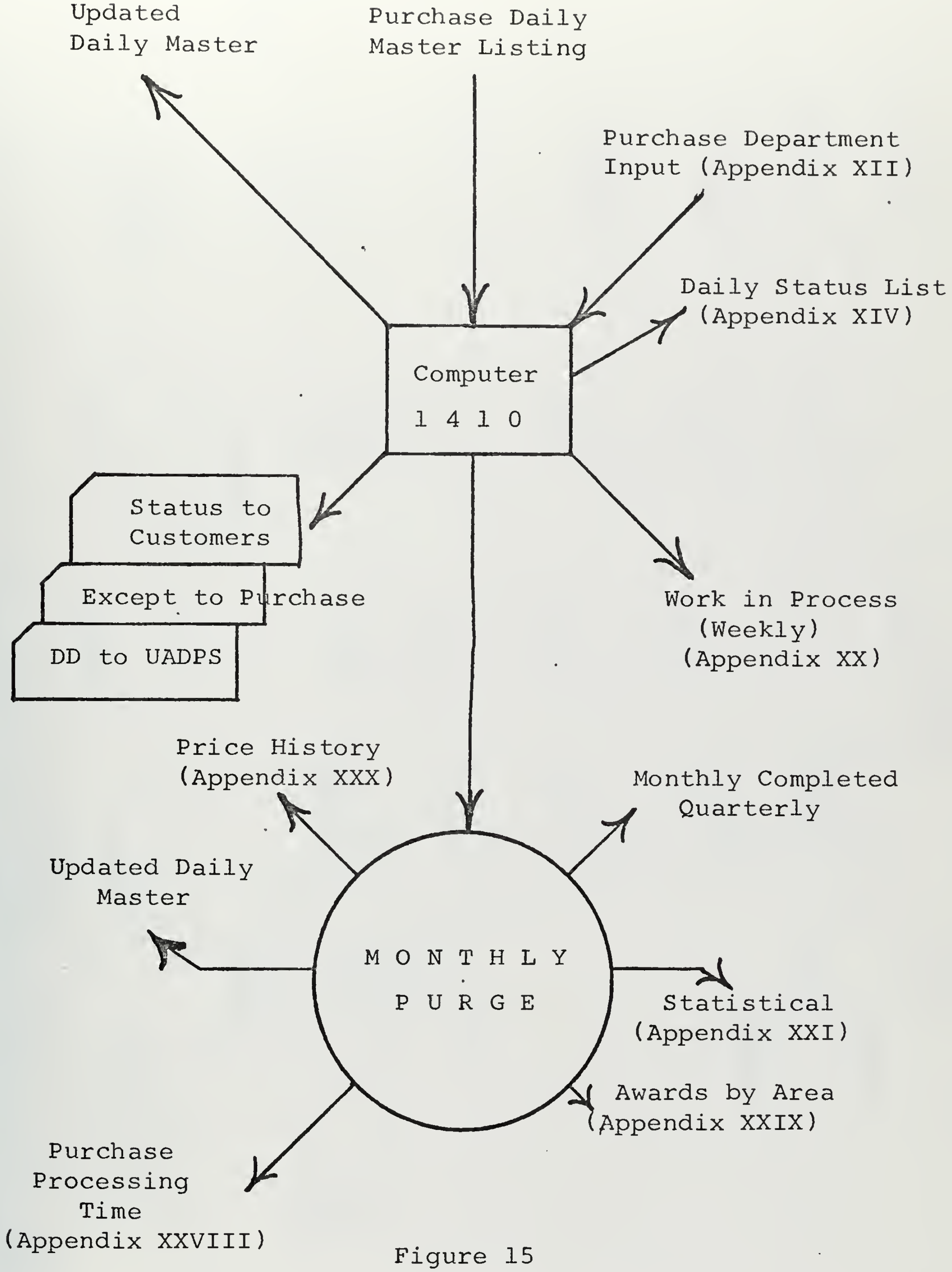
Updated Daily Master
Purchase Daily Master Listing
Purchase Department Input (Appendix XII)
Daily Status List (Appendix XIV)
Computer 1410
Status to Customers
Except to Purchase
DD to UADPS
Work in Process (Weekly) (Appendix XX)
Price History (Appendix XXX)
Monthly Completed Quarterly
Updated Daily Master
MONTHLY PURGE
Statistical (Appendix XXI)
Awards by Area (Appendix XXIX)
Purchase Processing Time (Appendix XXVIII)

Figure 15
Proposed Model

VENDOR IDENTIFICATION FILE

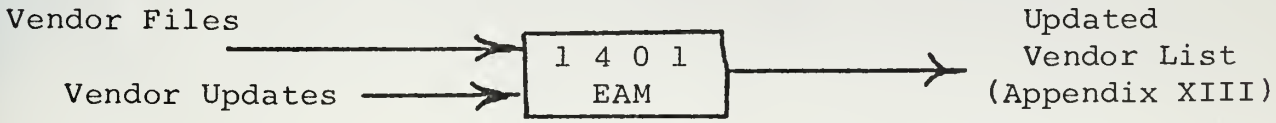

Figure 16

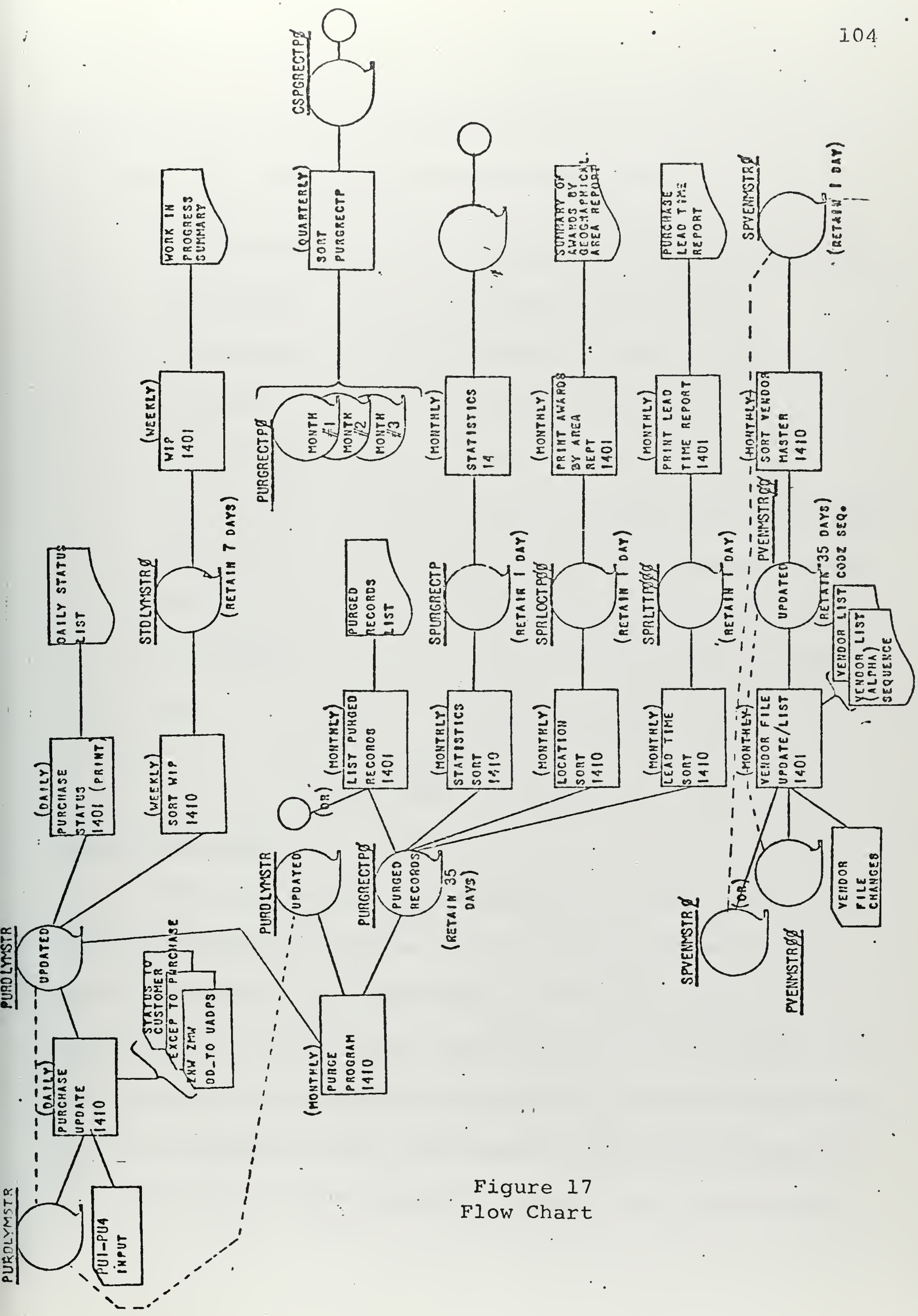

Figure 17
Flow Chart

A more detailed graphic illustration of the proposed model utilizing computer programming symbolism is demonstrated by Figure 17. Below is a cross reference guide.

CSPGRECTP0	Consolidated Purged Record Tape
PURDLYMSTR	Purchase Daily Master
PVENMSTR00	Purchase Vendor Master
PURGRECTP	Purged Record Tape
STDLYMSTR0	Sorted Daily Master File
SPRCTTP000	Sorted Purchase Lead Time Report
SPRCOCTP00	Sorted Purchase Location Report
SPURGRECTP	Sorted Purchase Record Tape
SPVENMSTR0	Sorted Purchase Vendor Master
WIP	Work in Process

Figure 18
Flow Chart for System

Daily Status List

The daily status listing provides the data base for an effective information system. It is already reference and a cross reference for all requisitions currently under procurement, as well as those completed during the current month. Data elements comprising the daily status listing must encompass codes or information which can answer a multitude of questions from both customers and managers. Appendix XIV is an example

of the daily status list. It includes the following:

*Document number - The document control number is assigned by the customer for his own internal use. This number generally follows the prescribed format called for in Military Standard Requisitioning and Issue Procedures, that is, it consists of a service designator code, followed by a unit identification code, the Julian date, and the serial number.

*Folder number - Folder numbers are the result of procurement request consolidation and computer keying. Often many individual requests for the same or similar material are consolidated into one procurement action. For example, a requisition for a particular size of steel bar and requisition for a different size of the same kind of steel bar would be treated as one procurement action with two line items and would be combined into one folder.

*Priority - The Uniform Military Material Movement and Issue Priority System has established priority ratings useful for the procurement managers. Within each priority rating a specific time frame has been established indicating when delivery of the material or service is desired. Higher priority requisitions require special

handling because of their reduced time frames; therefore, they result in a negotiated procurement since formal advertising is a much more lengthy procedure.

*Date Received Within the Procurement Organization - This date is important because it is used to measure how rapidly procurement request documents are transformed into actual codes, contracts or other procurement actions. Often generated procurement requests are not processed in a timely manner before arrival at the procurement organization. Then, if this date is not noted, the procurement organization often becomes the victim of abuse when the facts would prove that others beforehand were responsible for the delay.

*Buyer Code - Each buyer in a Naval organization is assigned an individual code which facilitates mail handling of returned correspondence from potential vendors. The buyers code is a method of tracing a procurement instrument and placing responsibility.

*Required Delivery Date/Date Material Required PDD/DMR - Often the time frame specified for a particular priority, justifiable under the Uniform Material Movement and Issue Priority System, will not satisfy the operational commitment of a Naval activity. If a situation of this

nature develops, procedures allow for the establishment of a time frame shorter than previously established by the priority designator.

*Customer Code - Customer codes are employed as a method of work load stratification. They indicate the source and percentage of a procurement organization's work load. For example, a typical breakdown would be thirty per cent support of fleet units, forty per cent support of aircraft and thirty per cent support for shore establishments. With information of this type, managers have a better understanding of where to apply resources.

*Purchase Instrument Identification Number (PIIN) - This number is the basic identification number utilized by the procurement organization when referencing a particular procurement action. A procurement request can be assigned one number when quotations are being solicited from vendors and another when a contract or order has been completed.

*Open Call Number - Government procurement has a contracting device similar to a department store charge account, allowing for the placement of small orders (under $250) with just a phone call. The vendor has a basic contractural agreement with an assigned contract number

and each order against this agreement is assigned an open call number for invoicing and accounting purposes.

*Vendor Code - Again, because of the limited space on an 80 column EAM card and because it is easier to use codes with computer program design, each vendor doing substantial business with the Government has an assigned five-digit code.[1] If no code has been assigned previously, it is mandatory that one be assigned. And, a cross reference listing for coding and decoding must be published for all interested parties.

*Estimated Delivery Date - This particular date is established at the time of award. Its function is to (1) key the MILSTRIP system for proper output and (2) notify the customer when to expect the material.

*Solication Method - Solication method coding is assigned by the buyer at the time of receipt of the purchase request. The buyer makes a tentative decision on how best to proceed with the buy, taking into account the priority and estimated money value of the commodity. Appendix XV is a listing of the solication method codes. This particular coding serves the dual function of (1) providing status to customers, and (2) providing

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[1] Federal Supply Code for Manufacturers H 4-1.

a keying operation for the computer to compile the required statistics. By providing the customer with the solication method code, the procurement organization informs the customer what particular method of buying will be employed. If the coding indicates formal bid procedures on a written solication method, the customers can anticipate receipt of further status in the form of an IFB number, which will also tell him the bid opening date and the total time frame for the purchasing action (from two to six weeks, depending on complexity and lack of complications) that can be expected.

*Refer Delay - Refer delay coding is used primarily for customer status and supervisor information. During the process of a procurement action, it is often necessary to refer the request back to the originator for additional information or for specification clarification. By employing coding as indicated in Appendix XVI, procurement organizations can adequately inform interested customers of procurement status and thus allow for better planning.

*Industrial Problems - An industrial problem coding system should be similar to the refer/delay coding, but broken out under a separate heading for ease of supervisor and

customer identification. The primary reason for having such a separate coding system is so that if required the buyer or contract administrator can indicate if a vendor is on strike, for example, or having some other difficulty which might affect availability or delivery. Appendix XVII is a typical listing of codes that might be employed for this purpose.

*Cancel Code - Cancel codes perform the dual function of providing customer and supervisor status and information and keying the computer for statistical purposes. A typical list of situations which might require the use of a cancel code is found in Appendix XVIII.

Daily Work In-Process Summary

Managers of procurement organizations need to know the extent of their work load input and output. The total number of requisitions received plus the number being processed and less any awards or cancellations equals the number outstanding at any given moment; it is this figure which is important in work assignments and department management. Procurement managers also must stratify the work load according to priority and departmental division. Higher priority requisitions require different methods of operations and thus, different planning and management than lower priority requisitions. Thus, by

observing trends, managers can better utilize their resources. To be sure, procurement organizations can function without the use of daily work in process summary, but they can optimize their resources if this information is available. Appendix XIV is a sample of a daily work in process summary employed by the procurement management information system model (ASPIRE).

* Departmental Division - Each division within a procurement organization operates more or less independantly. Responsibility for particular action is passed from one division or another. Not all procurement organizations employ the same organizational structure; some, for example, combine functions and have the buyers perform the contract administration function. However, this affects neither the concept of the model nor the information obtained.

*Received - This refers to the number of procurement request documents or actions received in the organization for the time frame, be it daily, weekly, or longer.

*Quote - This is the number of procurement actions that basically are in a hold status while awaiting time to pass, allowing vendor to reply to the request made of them by quoting on various items the organization is buying.

*Awards/Completed - The number of purchase orders written, orders placed and contracts written, i.e., the number of award actions is tabulated in this column.

*Cancelled - The number of procurement actions cancelled for any of the reasons listed in Appendix XVIII is tabulated in this column for information and control purposes.

*Outstanding - The number of receipts less the number of completed actions less the number cancelled actions equals the number of actions outstanding; thus, at a glance, a manager can see and graph the daily, weekly and monthly progress of the organization.

*Daily - As various procurement actions, i.e., receipts and awards, take place, they are tabulated in the proper column of that particular action.

*Cumulative - Daily transactions are carried forward and tabulated cumulatively for each of the areas of interest.

*Issue Group - See Appendix XIX.

Weekly Work in Process

The weekly work in process report is a unique report employed in the ASPIRE model which is intended to serve as an active management tool by using specific data elements to indicate a problem or potential problems. Every week, for example, the

information system will generate a listing for each buyer of the folders and procurement requisitions assigned to him for action. The buyer will verify the listing against his workload and thus provide a check in the system for errors. If errors are located, they are corrected, and the correct data is entered into the system. The supervisor also receives a copy of this listing. He is interested in noting whether the work load between buyers is balanced, and more significantly from a management viewpoint, whether there is any coding located in the *problem* column.

Problem coding is the most useful management information tool of the entire model. As a buyer performs the buy functions, he must meet certain dates and time frames, which have been established either by UMIPS or by himself, for example, in the setting of a bid opening date. The problem code indicates to the manager that something has gone astray, and the buyer has missed a date or time frame.

Setting time frames is one of the most difficult system design objectives. Certain buying functions are of such a routine nature that job standards have been developed.[1] Such functions are generally those involved in the small buying operation and the placement of orders rather than the letting

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[1] Defense Integrated Management Engineering System.

of weapons systems type contracting. Because of the multitude of problems that must be solved during the process of awarding a contract, standards of buyer performance become meaningless. If difficulties arise, the work expended on a $50,000 contract could, conceivably, be more than one for $500,000; thus, establishing work standard stratified by money value is not possible. However, how well a buyer processes the necessary documentation and meets established dates and time frames can be measured easily. For example, the bid opening date, or the time required to make an award after bid opening (normally two weeks) can be a measurement of a buyer's performance, a good indication if any problems are developing with a particular procurement requisition, and a possible cue that some action is necessary by management.

Data elements for the weekly work in process report are similar to those of the daily status report. Appendix XX is an example of a weekly work in process report envisioned by the model. Workable and unworkable backlog count is a new concept. A workable requisition is one that requires some form of procurement action or decision; whereas, an unworkable requisition is one that is in hold status awaiting a time frame to pass. For example, allowing vendors ten days to reply with a price quotation for desired items would result in the

procurement action being unworkable for that ten day period.

Monthly Statistics

Certain periodic statistics are required to be submitted to higher authority (Appendix I and III). Appendix XXI employed by the model would be a typical example of the compilation of monthly statistics. A truly Navy wide procurement management information system would have the capability of transmitting the data contained in Appendix XXI via the AUTODIN network directly to centralized data collection centers for further processing and refinement, resulting in the publishing of required information by the Naval Material Command for submission to higher authority. Appendix XXI could, conceivably, be modified by a minor change in system design to allow for direct print out of information eliminating the necessity of transcription onto other forms. What is important is that the system would have the capability of collecting the required information and displaying this information in a useful manner. Data elements necessary to obtain the proper stratification of information in addition to the ones already discussed in the model include the ones found in Figure 19 below.

1.	Amount	
2.	Vendor Size	Appendix XXII
3.	Purchase Type	Appendix XXIII
4.	Negotiations Authority	Appendix XXIV
5.	Purchase Method	Appendix XXV
6.	Transaction Code	Appendix XXVI
7.	Vendor Location	Appendix XXVII

Figure 19
Data Elements

Purchase Requisition Lead Time Report

One of the most valuable pieces of management information is the length of time required to perform a particular function. Without this basic knowledge or bench work, performance improvement or deterioration cannot be judged. Often, managers will average the number of days it takes to perform a particular process, but this average only indicates a portion of the picture. A procurement action requiring three times the normal time will completely megate outstanding work performed on six actions requiring half the normal time; thus, an information system should supply more than the average number of days.

The Purchase lead time report is structured in such a way as to still satisfy those who want to know the average

lead time. In addition, it gives a better picture of the actual processing time by grouping all purchase orders of a given type together, sorting that group into the number processed in one day, two days, three days, etc., and displaying this information. Using the data collected, it becomes easy to construct a graph and locate the median and mode which gives a better picture of the processing. The report format in Appendix XXVIII generates breakdown by purchase type and method of solication methods.

Awards by Geographical Area

Statistics are normally collected and reported for the amount of money spent outside the United States. These statistics are useful in computing the fold flowing to and from the Treasury. Since this is a required data element, the model expanded the use of this code to include the standard state codes used in other management systems, plus a few locally generated codes. This is nice to know information that is seldom utilized but is easily generated as a by-product of the information system. At a glance, the contracting officer will be able to tell Congressmen or Senators the amount of money expended in their state or district. Appendix XXIX is the sample format for the report.

Price History File

As previously mentioned, the price history file has taken on renewed emphasis. The major problems that must be solved in the design of a price history file are the establishment of a data base, the maintenance of the data base, and the retrieval of the information. Often price history files are maintained on a manual basis, requiring the recording of subsequent information by hand. A problem with any manual system utilizing folders is that material is often misfiled or not filed at all, but the major problem developes when the buyer wants to compare prices with previously purchased commodities. Finding the folder or folders containing the desired information becomes more time-consuing than the buyer can afford.

Therefore, a price history file, to be a useful tool, must be simple and easy to use. It must be maintained by automated means so that all data is recorded, and it must have a standardized format. The model utilizes four sub-grouping for the price history file. (See Appendix XXX).

Federal Stock Number Sequence is the easiest to code and maintain. If an item has sufficient usage in the military and Federal Government, it is assigned a multi-digit number unique to a particular part or material. Thus, when this item

is purchased, it is classified according to its stock number. When another item is purchased under the same stock number, it will appear on the price history file below the first entry. Armed with the price history file, the buyer can now determine how many items were purchased at what price, who the vendor was, the date, plus the purchase instrument identification number for further reference.

Part number sequence is more complicated than the Federal Stock Number Sequence. Parts that need replacement are not always assigned a stock number but instead use the manufacturers' part number. Several manufacturers may give the same part a different part number. Therefore, this section is arranged, first, by the manufacturers' identification number (the same number used in the daily status listing and the vendor list) and then by the individual part number. The purchase request will indicate the manufacturer and the part number desired. All the buyer must do is check the price history file to determine if this item had been previously purchased.

Nomenclature sequence is, by far, the most difficult to establish and maintain. An example best describes the problem. A buyer has a requisition for a three inch brass ball valve with a working pressure of 150 psi with flanges. Three people would probably code this valve differently; i.e.,

1) Valve, three inch, brass, 150 psi, flange
2) Brass valve, three inch, flange, 150 psi
3) Three inch valve, brass, flange, 150 psi.

Therefore, requisitions of this nature must be routed to a technical department for proper coding. Note Appendix XXXI. The input keypunch guide has made provisions for establishing a uniform format for inputting data into the data bank. With uniform coding, the buyer can now search the price history file and expect the same or similar entries.

Service contracts mark the fourth sequence. Contracts and purchase orders that have been awarded for service contracts are accumulated in this sequence. Again, coding is important not as significant as it is in the part number and nomenclature sections. It is fairly easy to compare the prices paid for hauling garbage if all contracts are listed under this heading.

Therefore, this particular format for a price history file satisfies the requirements placed on the organization from higher command, but also, what is more important, provides a tool that is easy to use and maintain because it uses data elements already in the system for other reports. Additional information could easily be added, of course. But this would require exceeding the 80 character length of the print out and using two or more lines of print out per line item. This would

result in a bigger and bulkier file, which, no doubt, buyers would shy away from using and thus would defeat the purpose of the price history file in the first place.

CHAPTER VI

CONCLUSION

Presently each procurement organization within the Navy Department has developed forms of procurement management information system designed to meet its needs. These systems vary in complexity from the simple manual system employed by the Navy Purchasing Office, Washington, to the complex system of the Aviation Supply Office in Philadelphia. As complex as some of the systems are, they still fail to achieve the optimum traits of an effective procurement management information system. Weding and Diamond indicate that an optimum system's traits include: Economy; Management Orientation; Comprehensiveness; Flexibility, Simplicity and Compatibility.[1] Although these authors were discussing procurement systems for industry, these traits also describe the type of information system needed by Navy contracting Officers.

Economy: An optimumly designed procurement information system would result in lower cost of operations and less money expended

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[1] Weding and Diamond, "Buy by Computer", p. 114.

in the procurement of materials and services. Currently, the Navy systems are reducing labor costs, but no appreciable effort has been expended in the development of a system that will take into consideration information external to the procurement organization (i.e., information from the market place) and merge it with data already generated during past procurements. Present systems adequately attack the lower cost of operations but fail in many respects to meet the objective of spending less money for material and services.

Management Orientation: Of the management systems studied, it is only the procurement organizations with ADP equipment which are getting daily status information; manual systems function with monthly reports. Procurement information systems should satisfy managers' requirements and desires for both faster and more accurate information from which to better evaluate the effectiveness of their procurement organization.

Comprehensiveness: Only major Navy inventory control points possess an information system approaching a total information and control system. A truly automated information system would have data banks of such magnitude that upon receipt of a purchase request, the computer would write the necessary solicitation document, make the award based upon pre-selected criteria and human evaluation, and pay vendor's invoice automatically.

Currently, the small purchase function is automated in some Navy Supply Centers' contracting function; others are currently working on implementation of the MILSCAP information system. However, no one particular procurement organization in the Navy at this time has a completely integrated procurement management information system. The Fleet Material Support Office, having overall responsibility for design of uniform automated data processing procedures and programs, is currently working on a system that will integrate the fragmented programs now in existence into a comprehensive information system.[1] Work is progressing on three different levels. Uniform programs are under development for (1) inventory control points, (2) Navy stock points (supply centers), and (3) fleet units. Because of the wide disparity of operations of these three different types of activities, one system applicable to all is beyond the scope of present resources.[2]

Flexibility: As Weding and Diamond indicate, the optimum system must be able to cope satisfactorily with procurement requests of varying complexity, from the simple oral order via the telephone to the most complex contract for delivery of a Nuclear Aircraft carrier and from rush orders to routine deliveries. To insure the required degree of flexibility,

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[1] Duncan P. McGillivary, telephone interview, Mechanicsbur, Pennsylvania, October, 1970.

[2] Ibid.

procurement should control the system and not be hampered by being forced to comply with design parameters imposed by other systems.

> This (not having procurement control the system) is unfortunate, in that it then becomes necessary to adapt the purchasing information system to the equipment rather than procuring the best designed equipment to meet the needs of the system. Since the purchasing department will be involved in some of the technical procurement details such as placing the order for the equipment, evaluating alternate suppliers, etc., it seems only appropriate that the purchasing agent should anticipate the problems that will arise when his department is designed to use the equipment for its data processing. It is too late to do this after the equipment has been acquired by the accounting department.[1]

Simplicity: When new management systems are designed of the designers, they fail to take into account the human element and how humans react to change. Overcoming the reluctance of people to something new, or to change their ways of doing a particular task will be the manager's biggest problem. Without the full support of the personnel putting information into the system accurately and in a timely fashion, any system is doomed to failure; at best inaccurate output data will be useless for effective management control. Thus, a new system must be simple to operate and easily convertible from the one presently employed. Paramount in system design is ease of

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[1] I. V. Fine and National Association of Purchasing Agents, "The Processing of Data," 1.0 Purchasing Systems and Procedures, Copyright 1965 by the National Association of Purchasing Agents for the GUIDE TO PURCHASING, p. 1.1.15.

Maintenance with adequate checks and balances to insure system accuracy. The system employed by ESO currently is facing accuracy problems. Unfortunately, as the Department of Defense expands the requirements for management information, the systems will become more rather than less complex.

Compatibility: In this particular area, procurement managers currently face their biggest challenge. The system of the future must be compatible with the other existing ADP programs. It must be compatible with all of the current MIL programs; i.e., MILSTRIP, MILSTRAP, MILSTEP and MILSCAP, as well as future programs. This compatibility will depend heavily upon standardization of data elements and uniform operations procedures.

The model developed is an attempt to bring together as many of the optimum system traits as possible within certain design parameters. It was designed to be an effective management tool, to manage by the exception principle rather than create a computer listing of such magnitude that it becomes impossible to handle. It also attempts to solve the major problems procurement managers have in the accumulation, digestion, and dissemination of procurement information. Basically, these problems are (1) work load stratification, (2) backlog size, (3) processing time for various types of procurement actions,

(4) problem procurement requests (if certain actions are not initiated immediately), (5) buyer efficiency, (6) wasting of valuable buyers' time and talent in the maintenance of the information system, (7) interface with present and future uniform automatic data processing systems being imposed by higher authority, (8) maintenance of a functional price history file, and others. These are but a few of the many problems that must be solved by Navy Contracting Officers.

The proposed model is currently undergoing testing at Naval Supply Center Puget Sound in Bremerton, Washington. Appendix XXXII is an excerpt from an article submitted by LCDR W. Hauenstein to be published in the Naval Supply Corps Newsletter.[1] This model does not provide solutions to all of the problems currently facing procurement managers but, nevertheless, is a step in the right direction.

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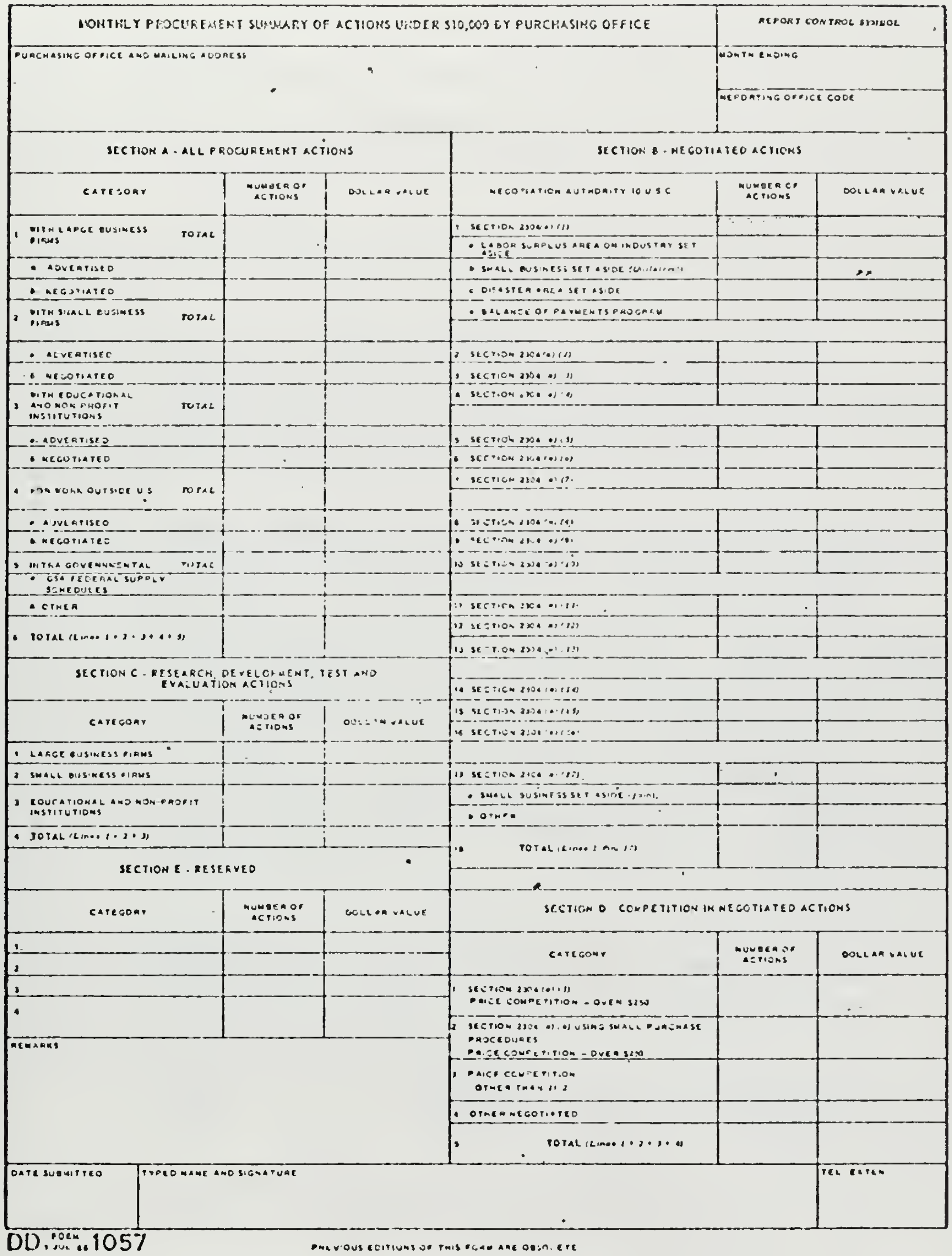
[1] William Hauenstein, Lieutenant Commander, Supply Corps, United States Navy, Director of Procurement, Naval Supply Center, Puget Sound, (Unpublished draft for Naval Supply Corps Newsletter, 1970).

MONTHLY PROCUREMENT SUMMARY
by
PURCHASE OFFICE



MONTHLY PROCUREMENT SUMMARY OF ACTIONS UNDER $10,000 BY PURCHASING OFFICE

REPORT CONTROL SYMBOL

PURCHASING OFFICE AND MAILING ADDRESS

MONTH ENDING

REPORTING OFFICE CODE

SECTION A - ALL PROCUREMENT ACTIONS

CATEGORY		NUMBER OF ACTIONS	DOLLAR VALUE
1 WITH LARGE BUSINESS FIRMS	TOTAL		
a ADVERTISED			
b NEGOTIATED			
2 WITH SMALL BUSINESS FIRMS	TOTAL		
a ADVERTISED			
b NEGOTIATED			
3 WITH EDUCATIONAL AND NON PROFIT INSTITUTIONS	TOTAL		
a ADVERTISED			
b NEGOTIATED			
4 FOR WORK OUTSIDE U.S.	TOTAL		
a ADVERTISED			
b NEGOTIATED			
5 INTRA GOVERNMENTAL	TOTAL		
a GSA FEDERAL SUPPLY SCHEDULES			
b OTHER			
6 TOTAL (Lines 1 + 2 + 3 + 4 + 5)			

SECTION B - NEGOTIATED ACTIONS

NEGOTIATION AUTHORITY 10 U.S.C.	NUMBER OF ACTIONS	DOLLAR VALUE
1 SECTION 2304(a)(1)		
a LABOR SURPLUS AREA OR INDUSTRY SET ASIDE		
b SMALL BUSINESS SET ASIDE (Unilateral)		
c DISASTER AREA SET ASIDE		
d BALANCE OF PAYMENTS PROGRAM		
2 SECTION 2304(a)(2)		
3 SECTION 2304(a)(3)		
4 SECTION 2304(a)(4)		
5 SECTION 2304(a)(5)		
6 SECTION 2304(a)(6)		
7 SECTION 2304(a)(7)		
8 SECTION 2304(a)(8)		
9 SECTION 2304(a)(9)		
10 SECTION 2304(a)(10)		
11 SECTION 2304(a)(11)		
12 SECTION 2304(a)(12)		
13 SECTION 2304(a)(13)		
14 SECTION 2304(a)(14)		
15 SECTION 2304(a)(15)		
16 SECTION 2304(a)(16)		
17 SECTION 2304(a)(17)		
a SMALL BUSINESS SET ASIDE (Joint)		
b OTHER		
18 TOTAL (Lines 1 thru 17)		

SECTION C - RESEARCH, DEVELOPMENT, TEST AND EVALUATION ACTIONS

CATEGORY	NUMBER OF ACTIONS	DOLLAR VALUE
1 LARGE BUSINESS FIRMS		
2 SMALL BUSINESS FIRMS		
3 EDUCATIONAL AND NON-PROFIT INSTITUTIONS		
4 TOTAL (Lines 1 + 2 + 3)		

SECTION E - RESERVED

CATEGORY	NUMBER OF ACTIONS	DOLLAR VALUE
1		
2		
3		
4		

SECTION D - COMPETITION IN NEGOTIATED ACTIONS

CATEGORY	NUMBER OF ACTIONS	DOLLAR VALUE
1 SECTION 2304(a)(1) PRICE COMPETITION - OVER $250		
2 SECTION 2304(a)(3) USING SMALL PURCHASE PROCEDURES PRICE COMPETITION - OVER $250		
3 PRICE COMPETITION OTHER THAN 1 & 2		
4 OTHER NEGOTIATED		
5 TOTAL (Lines 1 + 2 + 3 + 4)		

REMARKS

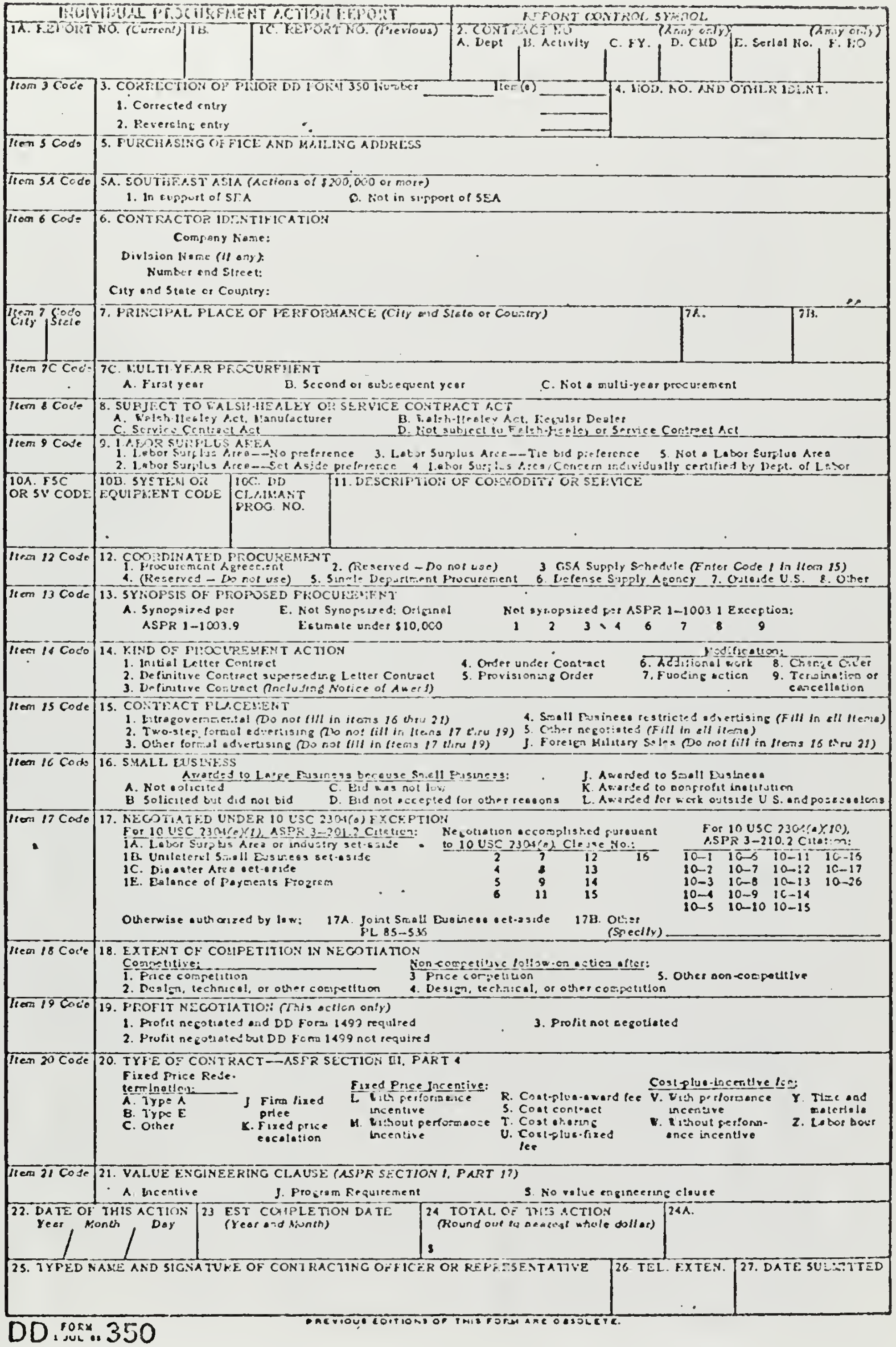
DATE SUBMITTED	TYPED NAME AND SIGNATURE	TEL. EXTEN.

DD FORM 1 JUL 66 1057

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

Appendix I

DD FORM 350: INDIVIDUAL PROCUREMENT ACTION REPORT



INDIVIDUAL PROCUREMENT ACTION REPORT

REPORT CONTROL SYMBOL

1A. REPORT NO. *(Current)*

1B.

1C. REPORT NO. *(Previous)*

2. CONTRACT NO *(Army only)* *(Army only)*
A. Dept B. Activity C. FY. D. CMD E. Serial No. F. MO

Item 3 Code

3. CORRECTION OF PRIOR DD FORM 350 Number ________ Item(s) ________
1. Corrected entry
2. Reversing entry

4. MOD. NO. AND OTHER IDENT.

Item 5 Code

5. PURCHASING OFFICE AND MAILING ADDRESS

Item 5A Code

5A. SOUTHEAST ASIA *(Actions of $200,000 or more)*
1. In support of SEA 0. Not in support of SEA

Item 6 Code

6. CONTRACTOR IDENTIFICATION
Company Name:
Division Name *(If any)*:
Number and Street:
City and State or Country:

Item 7 Code City State

7. PRINCIPAL PLACE OF PERFORMANCE *(City and State or Country)*

7A.

7B.

Item 7C Code

7C. MULTI-YEAR PROCUREMENT
A. First year B. Second or subsequent year C. Not a multi-year procurement

Item 8 Code

8. SUBJECT TO WALSH-HEALEY OR SERVICE CONTRACT ACT
A. Walsh-Healey Act, Manufacturer B. Walsh-Healey Act, Regular Dealer
C. Service Contract Act D. Not subject to Walsh-Healey or Service Contract Act

Item 9 Code

9. LABOR SURPLUS AREA
1. Labor Surplus Area—No preference 3. Labor Surplus Area—Tie bid preference 5. Not a Labor Surplus Area
2. Labor Surplus Area—Set Aside preference 4 Labor Surplus Area/Concern individually certified by Dept. of Labor

10A. FSC OR SV CODE

10B. SYSTEM OR EQUIPMENT CODE

10C. DD CLAIMANT PROG. NO.

11. DESCRIPTION OF COMMODITY OR SERVICE

Item 12 Code

12. COORDINATED PROCUREMENT
1. Procurement Agreement 2. *(Reserved – Do not use)* 3 GSA Supply Schedule *(Enter Code 1 in Item 15)*
4. (Reserved – *Do not use*) 5. Single Department Procurement 6. Defense Supply Agency 7. Outside U.S. 8. Other

Item 13 Code

13. SYNOPSIS OF PROPOSED PROCUREMENT
A. Synopsized per ASPR 1–1003.9
E. Not Synopsized: Original Estimate under $10,000
Not synopsized per ASPR 1–1003 1 Exception: 1 2 3 4 6 7 8 9

Item 14 Code

14. KIND OF PROCUREMENT ACTION
1. Initial Letter Contract
2. Definitive Contract superseding Letter Contract
3. Definitive Contract *(Including Notice of Award)*
4. Order under Contract
5. Provisioning Order
Modification:
6. Additional work
7. Funding action
8. Change Order
9. Termination or cancellation

Item 15 Code

15. CONTRACT PLACEMENT
1. Intragovernmental *(Do not fill in items 16 thru 21)*
2. Two-step formal advertising *(Do not fill in Items 17 thru 19)*
3. Other formal advertising *(Do not fill in Items 17 thru 19)*
4. Small Business restricted advertising *(Fill in all Items)*
5. Other negotiated *(Fill in all items)*
J. Foreign Military Sales *(Do not fill in Items 16 thru 21)*

Item 16 Code

16. SMALL BUSINESS
Awarded to Large Business because Small Business:
A. Not solicited
B Solicited but did not bid
C. Bid was not low
D. Bid not accepted for other reasons
J. Awarded to Small Business
K. Awarded to nonprofit institution
L. Awarded for work outside U S. and possessions

Item 17 Code

17. NEGOTIATED UNDER 10 USC 2304(a) EXCEPTION
For 10 USC 2304(a)(1), ASPR 3–201.2 Citation:
1A. Labor Surplus Area or industry set-aside
1B. Unilateral Small Business set-aside
1C. Disaster Area set-aside
1E. Balance of Payments Program

Negotiation accomplished pursuant to 10 USC 2304(a), Clause No.:

2	7	12	16
4	8	13	
5	9	14	
6	11	15	

For 10 USC 2304(a)(10), ASPR 3–210.2 Citation:

10–1	10–6	10–11	10–16
10–2	10–7	10–12	10–17
10–3	10–8	10–13	10–26
10–4	10–9	10–14	
10–5	10–10	10–15	

Otherwise authorized by law: 17A. Joint Small Business set-aside PL 85–536 17B. Other *(Specify)* ________

Item 18 Code

18. EXTENT OF COMPETITION IN NEGOTIATION
Competitive:
1. Price competition
2. Design, technical, or other competition
Non-competitive follow-on action after:
3 Price competition
4. Design, technical, or other competition
5. Other non-competitive

Item 19 Code

19. PROFIT NEGOTIATION *(This action only)*
1. Profit negotiated and DD Form 1499 required
2. Profit negotiated but DD Form 1499 not required
3. Profit not negotiated

Item 20 Code

20. TYPE OF CONTRACT—ASPR SECTION III, PART 4
Fixed Price Redetermination:
A. Type A
B. Type E
C. Other
J Firm fixed price
K. Fixed price escalation
Fixed Price Incentive:
L. With performance incentive
M. Without performance incentive
R. Cost-plus-award fee
S. Cost contract
T. Cost sharing
U. Cost-plus-fixed fee
Cost-plus-incentive fee:
V. With performance incentive
W. Without performance incentive
Y. Time and materials
Z. Labor hour

Item 21 Code

21. VALUE ENGINEERING CLAUSE *(ASPR SECTION I, PART 17)*
A. Incentive J. Program Requirement S. No value engineering clause

22. DATE OF THIS ACTION
Year / Month / Day

23 EST COMPLETION DATE *(Year and Month)*

24 TOTAL OF THIS ACTION *(Round out to nearest whole dollar)*
$

24A.

25. TYPED NAME AND SIGNATURE OF CONTRACTING OFFICER OR REPRESENTATIVE

26. TEL. EXTEN.

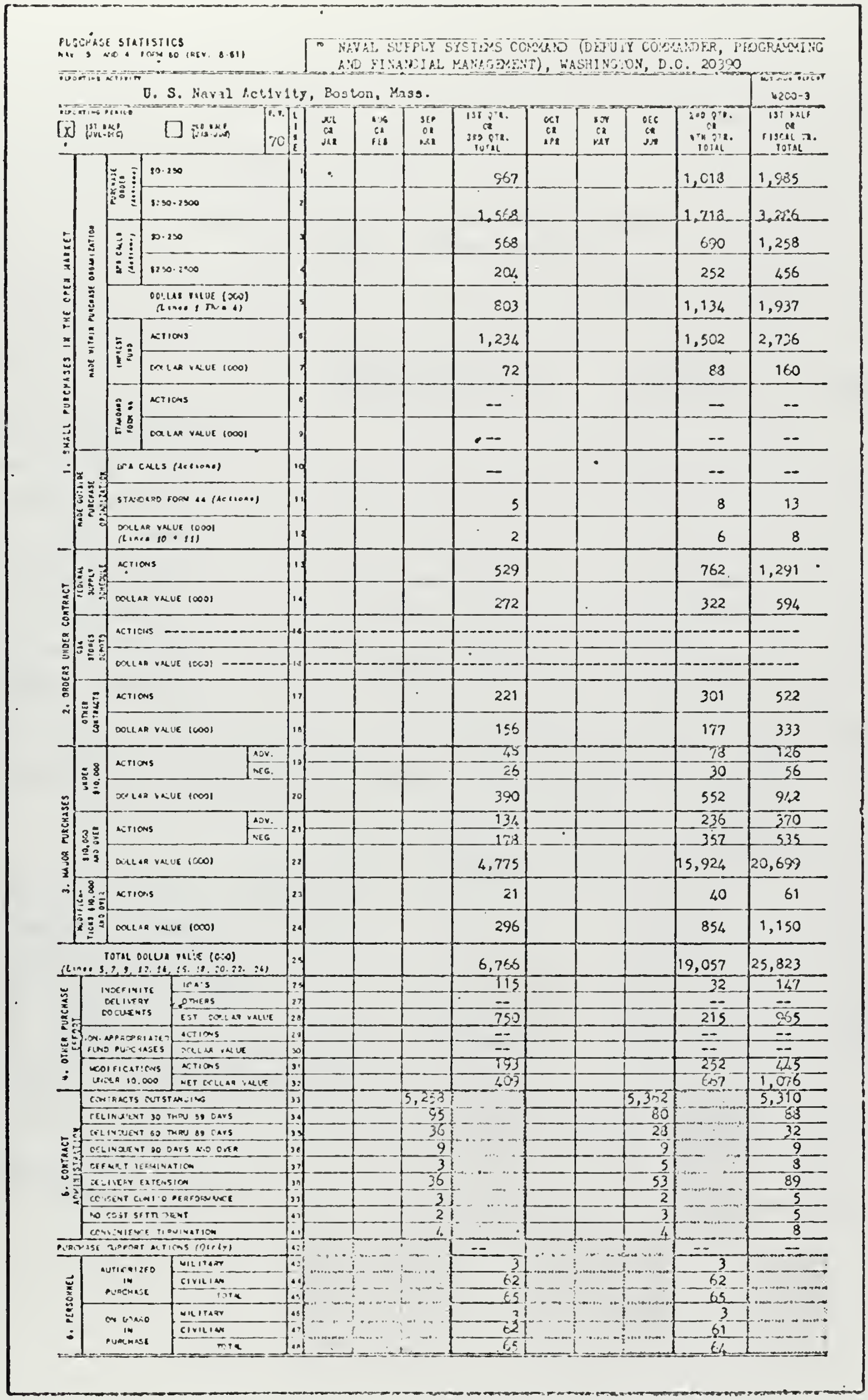
27. DATE SUBMITTED

DD FORM 1 JUL 68 350

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

Appendix II

PURCHASE STATISTICS (NAVSUP FORM 80)



PURCHASE STATISTICS
NAV 3 AND 4 FORM 80 (REV. 8-61)

TO NAVAL SUPPLY SYSTEMS COMMAND (DEPUTY COMMANDER, PROGRAMMING AND FINANCIAL MANAGEMENT), WASHINGTON, D.C. 20390

REPORTING ACTIVITY: U. S. Naval Activity, Boston, Mass.

[illegible]: 4200-3

REPORTING PERIOD: ☒ 1ST HALF (JUL-DEC) ☐ 2ND HALF (JAN-JUN)

F.Y. 70

Section	Group	Item	Line	JUL OR JAN	AUG OR FEB	SEP OR MAR	1ST QTR. OR 3RD QTR. TOTAL	OCT OR APR	NOV OR MAY	DEC OR JUN	2ND QTR. OR 4TH QTR. TOTAL	1ST HALF OR FISCAL YR. TOTAL
1. SMALL PURCHASES IN THE OPEN MARKET — MADE WITHIN PURCHASE ORGANIZATION	PURCHASE ORDER (Actions)	$0-250	1				967				1,018	1,985
		$250-2500	2				1,568				1,718	3,286
	BPA CALLS (Actions)	$0-250	3				568				690	1,258
		$250-2500	4				204				252	456
		DOLLAR VALUE (000) (Lines 1 Thru 4)	5				803				1,134	1,937
	IMPREST FUND	ACTIONS	6				1,234				1,502	2,736
		DOLLAR VALUE (000)	7				72				88	160
	STANDARD FORM 44	ACTIONS	8				--				--	--
		DOLLAR VALUE (000)	9				--				--	--
MADE OUTSIDE PURCHASE ORGANIZATION		BPA CALLS (Actions)	10				--				--	--
		STANDARD FORM 44 (Actions)	11				5				8	13
		DOLLAR VALUE (000) (Lines 10 + 11)	12				2				6	8
2. ORDERS UNDER CONTRACT	FEDERAL SUPPLY SCHEDULE	ACTIONS	13				529				762	1,291
		DOLLAR VALUE (000)	14				272				322	594
	GSA STORES DEPOTS	ACTIONS	15									
		DOLLAR VALUE (000)	16									
	OTHER CONTRACTS	ACTIONS	17				221				301	522
		DOLLAR VALUE (000)	18				156				177	333
3. MAJOR PURCHASES	UNDER $10,000	ACTIONS ADV.	19				45				78	126
		ACTIONS NEG.					26				30	56
		DOLLAR VALUE (000)	20				390				552	942
	$10,000 AND OVER	ACTIONS ADV.	21				134				236	370
		ACTIONS NEG.					178				357	535
		DOLLAR VALUE (000)	22				4,775				15,924	20,699
	MODIFICATIONS $10,000 AND OVER	ACTIONS	23				21				40	61
		DOLLAR VALUE (000)	24				296				854	1,150
TOTAL DOLLAR VALUE (000) (Lines 5, 7, 9, 12, 14, 16, 18, 20, 22, 24)			25				6,766				19,057	25,823
4. OTHER PURCHASE EFFORT	INDEFINITE DELIVERY DOCUMENTS	ICA'S	26				115				32	147
		OTHERS	27				--				--	--
		EST. DOLLAR VALUE	28				750				215	965
	NON-APPROPRIATED FUND PURCHASES	ACTIONS	29				--				--	--
		DOLLAR VALUE	30				--				--	--
	MODIFICATIONS UNDER 10,000	ACTIONS	31				193				252	445
		NET DOLLAR VALUE	32				409				667	1,076
6. CONTRACT ADMINISTRATION		CONTRACTS OUTSTANDING	33			5,258				5,362		5,310
		DELINQUENT 30 THRU 59 DAYS	34			95				80		88
		DELINQUENT 60 THRU 89 DAYS	35			36				28		32
		DELINQUENT 90 DAYS AND OVER	36			9				9		9
		DEFAULT TERMINATION	37			3				5		8
		DELIVERY EXTENSION	38			36				53		89
		CONSENT CONT'D PERFORMANCE	39			3				2		5
		NO COST SETTLEMENT	40			2				3		5
		CONVENIENCE TERMINATION	41			4				4		8
PURCHASE SUPPORT ACTIONS (Qtrly)			42				--				--	--
6. PERSONNEL	AUTHORIZED IN PURCHASE	MILITARY	43				3				3	
		CIVILIAN	44				62				62	
		TOTAL	45				65				65	
	ON BOARD IN PURCHASE	MILITARY	46				3				3	
		CIVILIAN	47				62				61	
		TOTAL	48				65				64	

Appendix III

MONTHLY PURCHASE PERFORMANCE REPORT

NAVSUP Report No.

TO: NAVAL SUPPLY SYSTEMS COMMAND

MONTHLY PURCHASING PERFORMANCE REPORT
(no cover letter needed)

FROM: ____________________ MONTH REPORTED ____________

I. WORKLOAD:	SMALL PURCHASES MAIN OFFICE BRANCH	LARGE PURCHASES	TOTAL
NO. OF REQUISITIONS:			
BEGINNING ON HAND	:	:	:
PLUS RECEIVED	:	:	:
TOTAL INPUT	:	:	:
LESS CANCELLED	:	:	:
NET INPUT	:	:	:
LESS COMPLETED	:	:	:
ENDING ON HAND	:	:	:

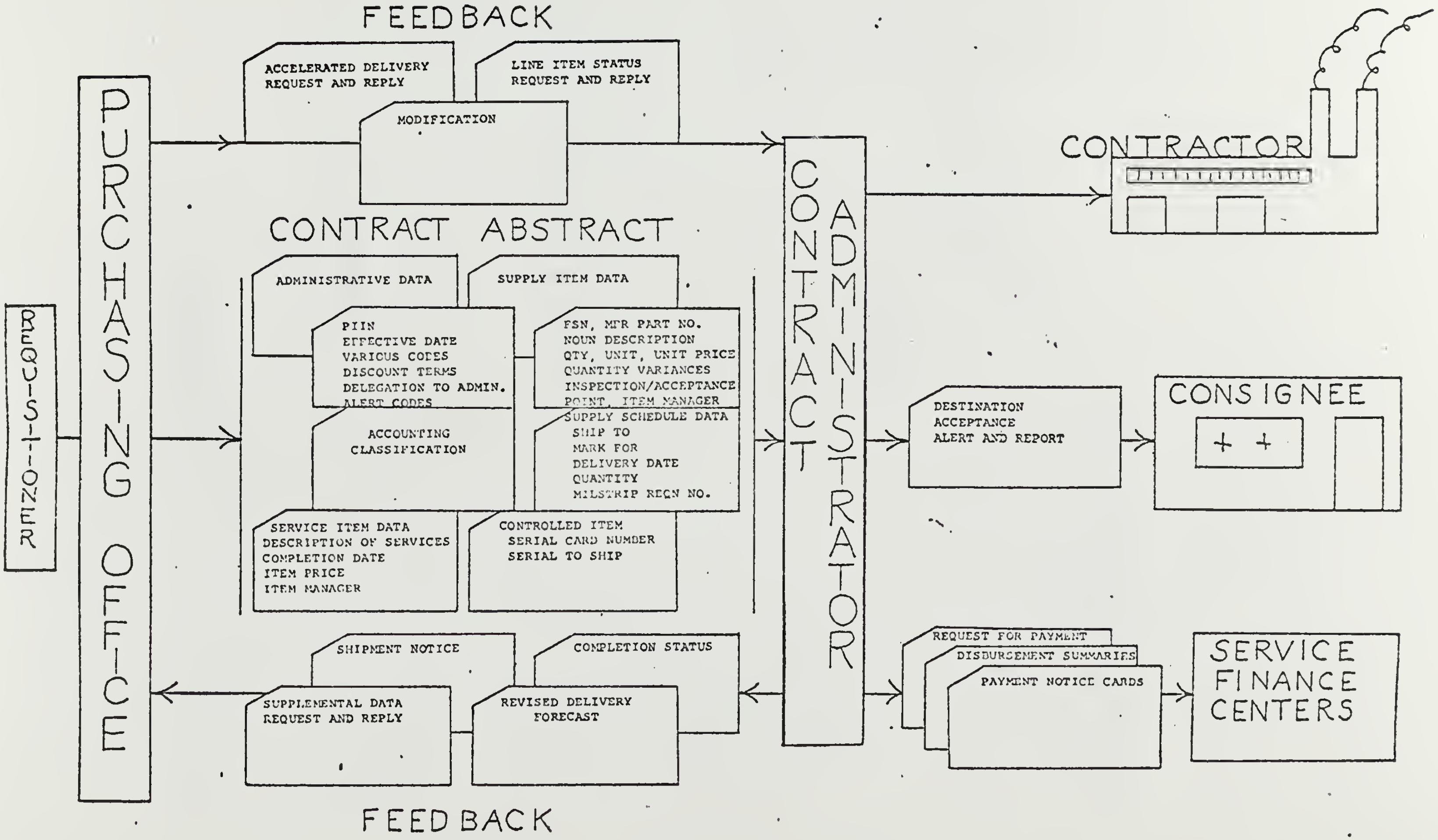
II. UTILIZATION OF BPA CALLS & IMPREST FUNDS VS. PURCHASE ORDERS

		ACTIONS	
	DOLLAR	NO.	%
PURCHASE ORDERS ($0-250)			
PURCHASE ORDERS ($250-2500)			
BPA CALLS ($0-250)			
BPA CALLS ($250-2500)			
IMPREST FUND			
TOTAL			100
BPA CALLS (OUTSIDE PUR. ORG.)			
TOTAL NO. OF BPAS OUTSTANDING			

BRANCH OFFICE
(included in above) ____________________

Appendix IV

MILSCAP CARD FLOW



Appendix V

TRAINING REPORT

TRAINING		NUMBER OF PROCUREMENT PERSONNEL		
		TRAINED	REQUIRING TRAINING	IN TRAINING
1. DEFENSE SMALL PURCHASE COURSE		:________	:________	:________
2. OTHER DOD PURCHASE COURSES		:________	:________	:________
3. IN-HOUSE PURCHASE COURSES:				
SHORT TITLE	HOURS PRESENTED			
________________	:________			:________
________________	:________			:________
________________	:________			:________
________________	:________			:________
________________	:________			:________
4. OTHER PURCHASE COURSES:				
LOCAL CLASSROOM (DESCRIBE ON REVERSE)				:________
CORRESPONDENCE (DESCRIBE ON REVERSE)				:________

IV. TRAINEES ON BOARD:

GS-1102-5 :________

GS-1102-7 :________

GS-________ (FILL IN AS APPROPRIATE) :________

____

(Signature) (Date)
DIRECTOR

Appendix VI

WORK LOAD REPORTING

	Work in Process (PRs) 7/	Completions (exclude cancellations) (PRs)	Man-hours expended by Method (M/Hs)	Cancellations (PRs)
a. Small Purchase				
(1) Automated				
(2) Manual				
b. Orders under BOA				
(1) Manual				
i. priced (Incl. prepriced) 8/				
a. $2500 or less				
b. More than $2500				
ii. unpriced 9/				
a. $2500 or less		10/	11/	
b. More than $2500				
iii. Other 12/	5/	5/		5/
c. Large Purchase Method	1/	2/		
(1) Formally Advertised 3/				
(2) Negotiated				
i. $2,501 99,999 4/				
ii. $100,000 and over 4/				
iii. Ammunition (SPCC only)				
d. Other purchase requests cancelled prior to method determination	5/	5/	5/	
e. Total, all methods				
f. Total technical referrals	6/	5/	5/	5/

1/ Includes requisitions to be processed as Indefinite Delivery Contracts and as letter contracts.

2/ Includes requisitions processed as Indefinite Delivery Contracts and as Definitized Letter Contracts.

3/ Includes Ammunition - SPCC.

(cont.)

4/ Excludes Ammunition - SPCC

5/ Not Applicable

6/ Total of all purchase requests which have been recorded as receipts and which have been referred during the reporting period to the appropriate technical codes prior to completion. Point of Count is to be made at the time of referral of the purchase request.

7/ Number of purchase requests on-hand in the buying operations component, including technical referrals, at the end of the reporting period.

8/ a. A Priced order under a BOA contains a firm fixed price for each line item. The price is negotiated after receipt of the requirement in the purchase operation and is mutually agreed upon at the time the order is placed.

b. A Pre-priced order under a BOA contains a firm fixed price for each line item which is negotiated prior to receipt of a requirement in the purchase operation and governs for a specific period of time. This price is included in an Article Price List (APL), BOA Price Catalog, etc.

9/ An Unpriced order under a BOA does not contain a firm fixed price for each line item but allows a contractor to commence work price to negotiation and price definitization.

10/ A PR for an unpriced order is considered a completion after a price is mutually agreed upon and the paperwork leaves the buying operation for further processing.

11/ Includes issuing the unpriced order, analyzing contractor cost proposals, obtaining audits, conducting negotiations to price out the order, etc.

12/ Includes man-hours expended on work units other than orders under BOA, e.g., man-hours expended on negotiating the terms and conditions of the basic BOA: man-hours expended on negotiating Article Price Lists, BOA Price Catalogs, etc.

RESPONSIVENESS/WORKLOAD

Procurements Completed Within:

	1-3 Days	4-15 Days	Over 15 Days	Total Completed	In Process
BPA					
IMP Fund					
Del Orders					

	1-10 Days	11-20 Days	Over 20 Days	Total Completed	In Process
Pur Orders					

	1-30 Days	31-60 Days	61-90 Days	91-120 Days	121-180 Days	Over 180 Days	Total Completed	In Process
Formal Adv.								
2 Step								
Negotiated								
Under $10K								
$10-50K								
$50-100K								
Over 100K								

Appendix VIII

CLAIMANT PROGRAMS

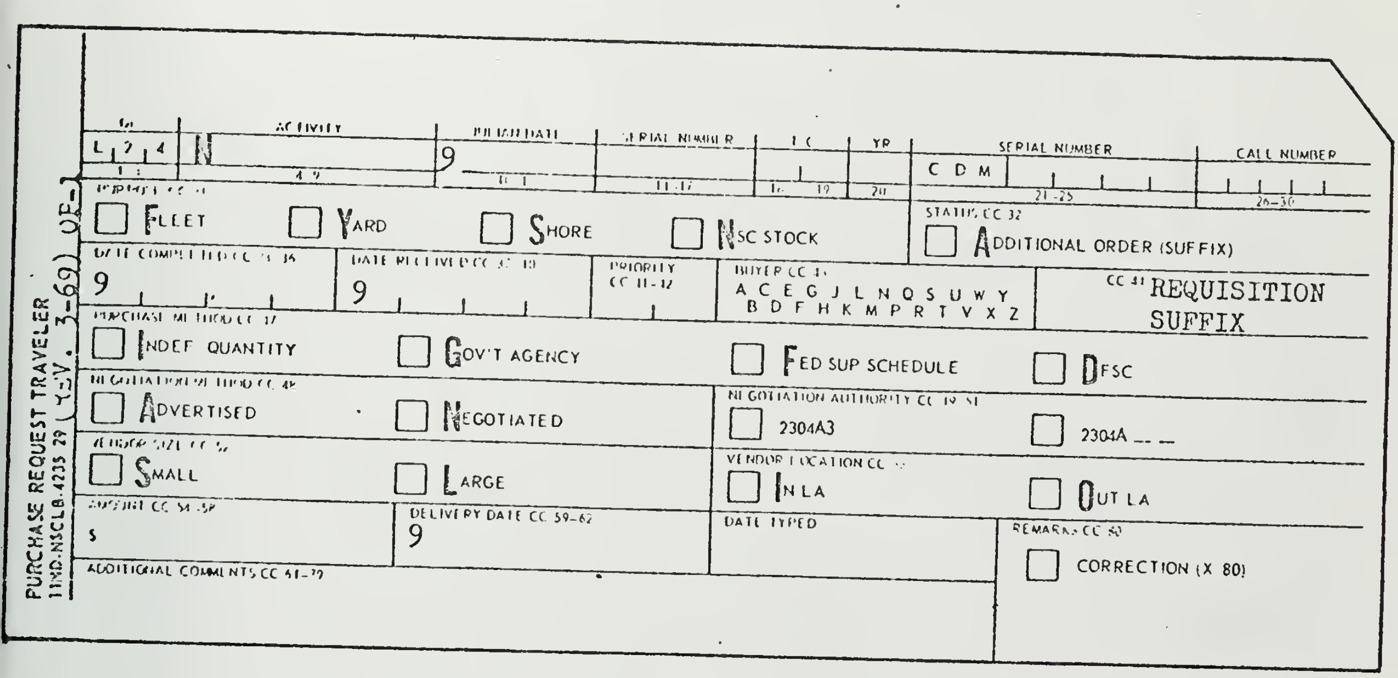
CODE	
A-1a	Airframes, Related Assemblies and Spaces
A-1b	Aircraft, Engines and Related Spaces and Parts
A-1c	Other Aircraft Equipment and Supplies
A-2	Missile and Space Systems
A-3	Ships
A-4a	Combat Vehicles
A-4b	Non-Combat Vehicles
A-5	Weapons
A-6	Ammunitions
A-7	Electronic and Communication Equipment
A-8a	Petroleum
A-8b	Other Fuels and Lubricants
A-8c	Separately Procured Containers and Handling Equipment
A-9	Textiles, Clothing and Equipment
B-1	Building Supplies
B-2	Subsistence
B-3	Transportations Equipment (Railway)
B-9	Production Equipment
C-2	Construction
C-9a	Construction Equipment
C-9b	Medical and Dental Supplies and Equipment
C-9c	Photographic Equipment and Supplies
C-9d	Materials Handling Equipment
C-9e	All Others Not Identifiable To Any Other Procurement Program
S-1	Services
ND	Actions Under $10,000

NAVY MATERIAL COMMAND
MASTER PLAN DATA ELEMENTS

DD 350 Item No.	Primary Sort	Activity/Year/ Contract No. 2	Southeast Asia 5	Contractor Identification Office Location 6	Place of Contract Performance 7	Multi-Year Procurement 7C	Walsh-Healey or Service Contract Act 8	Labor Surplus Area 9	FSC or Service Code (R&D, Service Contr & Constr) 10A	System or Equipment (Weapons System) 10B	DD Claimant Program 10C	Proc. Programs (Grouping of DD Claimant Programs)	Coordinated Procurement 12	Synopsis of Proposed Procurement 13	Kind of Procurement Action - Letter Contract/ Mod./Definitive Contract 14	Contract Placement (Method of Procurement) 15	Small Business 16	Negotiation Authority 17	Extent of Competition in Negotiation 18	Profit Negotiation (will DD Form 1499 be submitted) 19	Type of Contract 20	Value Engineering 21	Estimated Completion Date 22	Fractionation of Procurement Actions (16 Breakdowns) 24	TOTAL SORTS
2	Activity/Year/ Contract No.		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	21
5	Southeast Asia	✓		✓	✓										✓	✓		✓	✓		✓			✓	9
6	Contractor Identification Office Location	✓	✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	20
7	Place of Contract Performance	✓	✓			✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	20
7C	Multi-Year Procurement	✓		✓	✓				✓	✓	✓				✓	✓	✓	✓	✓		✓			✓	13
8	Walsh-Healey or Service Contract Act	✓		✓	✓																			✓	4
9	Labor Surplus Area	✓		✓	✓																			✓	4
10A	FSC or Service Code (R&D Services Contr & Constr)	✓	✓	✓	✓	✓		✓		✓	✓				✓	✓	✓	✓	✓		✓			✓	15
10B	System or Equipment (Weapons System)	✓	✓	✓	✓	✓		✓	✓		✓				✓	✓	✓	✓	✓		✓			✓	15
10C	DD Claimant Program	✓	✓	✓	✓	✓		✓	✓	✓					✓	✓	✓	✓	✓		✓			✓	15
	Proc. Programs (Grouping of DD Claimant Program)	✓							✓		✓													✓	4
12	Coordinated Procurement	✓		✓	✓										✓	✓		✓			✓			✓	8
13	Synopsis of Proposed Procurement	✓	✓		✓										✓	✓		✓			✓			✓	8
14	Kind of Procurement Action - Letter Contract/ Mod./Definitive Contract	✓	✓	✓	✓	✓		✓	✓	✓	✓					✓	✓	✓	✓		✓			✓	15
15	Contract Placement (Method of Procurement)	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	20
16	Small Business	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	20
17	Negotiation Authority	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	20
18	Extent of Competition in Negotiation	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	20
19	Profit Negotiation (will DD Form 1499 be submitted)	✓	✓	✓	✓	✓			✓	✓	✓		✓		✓	✓	✓	✓	✓		✓			✓	16
20	Type of Contract	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	19
21	Value Engineering	✓		✓	✓										✓	✓		✓			✓			✓	8
23	Estimated Completion Date	✓	✓	✓	✓																			✓	5
24	Fractionation of Procurement Actions (16 Breakdowns)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			20
TOTAL SORTS		22	16	19	20	14	4	13	15	14	15		10	9	18	18	14	18	15	8	18	9	8	22	319

Appendix X

KEY PUNCH GUIDE



PURCHASE REQUEST TRAVELER
11ND.NSCLB.4235 29 (REV. 3-69) OE

L 2 4 (1 2)
ACTIVITY: N (4 9)
JULIAN DATE: 9
SERIAL NUMBER (11 17)
T C (16 19)
YR (20)
SERIAL NUMBER: C D M (21-25)
CALL NUMBER (26-30)

PURPOSE CC
☐ FLEET ☐ YARD ☐ SHORE ☐ NSC STOCK

STATUS CC 32
☐ ADDITIONAL ORDER (SUFFIX)

DATE COMPLETED CC 33 36: 9
DATE RECEIVED CC 37 40: 9
PRIORITY CC 11-12
BUYER CC 4?
A C E G J L N Q S U W Y
B D F H K M P R T V X Z

CC 41 REQUISITION SUFFIX

PURCHASE METHOD CC 47
☐ INDEF QUANTITY ☐ GOV'T AGENCY ☐ FED SUP SCHEDULE ☐ DFSC

NEGOTIATION METHOD CC 48
☐ ADVERTISED ☐ NEGOTIATED

NEGOTIATION AUTHORITY CC 49 51
☐ 2304A3 ☐ 2304A __ __

VENDOR SIZE CC 5?
☐ SMALL ☐ LARGE

VENDOR LOCATION CC
☐ IN LA ☐ OUT LA

AMOUNT CC 54-58: $
DELIVERY DATE CC 59-62: 9
DATE TYPED

REMARKS CC 80
☐ CORRECTION (X 80)

ADDITIONAL COMMENTS CC 61-79

Appendix XI

PURCHASE STATUS KEY PUNCH GUIDE

		DOCUMENT NUMBER				SUPPL'M'TRY ADDRESS	SIG	PRI	RDD/ DMR	DATE RECD PURCH	M & S	FOLDER NUMBER
		REQUISIT'R	DATE	SERIAL								
1 P U 1												
2 P U 1												
3 P U 1 1	2	3	4	5	6	7 8	9	10	11	12	13	14

PHC	STOCK NUMBER/PART NUMBER/NOMENCLATURE				DIST/ COG	FUND CODE ORIG	FUND CODE CHAR	UNIT OF ISS	QUANTITY	BUY-ER	SOL METH
	FSC	FIIN	TSMC	ADDITIONAL							
1											
2											
3 15	16	17	18	19	20	21	22	23	24	25	26

PURCHASE STATUS KEY PUNCH GUIDE
(3-ITEM)
13ND NSC 4200/2 (7-69)

	REQUEST FOR QUOTE/ PROPOSAL NUMBRE	OPENING DATE		STOCK NUMBER/PART NUMBER/ NOMENCLATURE (CONT.)
1 P U 2			1	
2 P U 2			2	
3 P U 2 27	28	29	3	30

	PURCHASE/CONTRACT/ ORDER NUMBER	CALL NUMBER	EST. DELY DATE	SHIP	VENDOR			PUR TYPE	NEG AUTH	PUR METH	AMOUNT
					CODE	SIZE	LOC.				
1 P U 3											
2 P U 3											
3 P U 3 31	32	33	34	35	36	37	38	39	40	41	42

	DELAY	PROB	CANC	CHNG BLCK	NEW INFORMATION
1 P U 4					
2 P U 4					
3 P U 4 43	44	45	46	47	48

SEATTLE DELIVERY C/400.11 ☐ C/301.16 ☐

IMPREST FUND/COD BREMERTON ☐

Appendix XII

PURCHASE VENDOR ADDRESS LISTING

VENDOR CODE	VENDOR NAME	STREET ADDRESS	CITY	STATE	ZIP	TELEPHONE	TYPE
9A195	Tool House Co The	655 S Orcas	Seattle	WA	98108	RO21500	S
L1619	Tools & Gages Inc	2901 1st Ave S	San Carlos	CA	94070		S
T0856	Trace Elec Co	1524-12th	Seattle	WA	98122	3235548	S
07694	Traid Corp	P O Box 1839	Glendale	CA	91201		S

DAILY PURCHASE STATUS LISTING

```
   DOCUMENT       FOLDER   PRI  DATE  BUY   RDD   CUST   REQ.FOR QUOTE  OPEN VENDOR  EDD   S   S REF
    NUMBER        NUMBER        RECD  CDE   DMR   CODE   P/O-CONTRACT#  CALL  CODE         M   C DEL
N0025102221022   038024    03   0223  21   0233  YCVA64    71Q1982      0237          000  0
N0025102221030   037999    03   0223  22   0231  YD1062    02221030     COD  L0642  0231  0   G
N0025102221031   037998    03   0223  21   0231  YD1062    02221031     COD  L0787  0238  0   4
```

DAILY WORK IN PROCESS SUMMARY

```
CONTRACTS BRANCH       RECEIVED      QUOTE       AWARDS      CANCELED     OUTSTANDING
                        D     C     D     C     D      C     D     C
                IG 1   10    67          225          108    1    16          292
                IG 2    4   113    12   363     2    181         16          476
                IG 3   24    46     1    66     7    107                     112
                IG 4    2.   12     6    59     2     26                      71

           TOTAL       40   238    19   713    11    422    1    32          951

SMALL PURCHASE BRANCH

                IG 1   50   182     3   128    39    506    1    45          310
                IG 2  114   212    22   199    32    503    4    40          411
                IG 3   83   209     8   265    55    605         48          474
                IG 4   33    53     4    84    26    234    1     7           37

           TOTAL      280   656    37   676   152   1848    6   140         1332

   OVERALL TOTAL      320   894    56  1389   163   2270    7   172         2283

 SMALL PURCHASES      313

 LARGE PURCHASES        7

           TOTAL      320
```

SOLICITATION METHOD CODES

Code	Method
W	Written
Ø	Oral

Appendix XV

REFERRED/DELAY CODES

CODE	REASON
1	Document Referred to Originating Code/Activity
2	Waiting for Drawings
3	Referred for Evaluation
4	Referred for Funds
5	Referred for Specifications Changes
6	Extended Bid Opening
7	Pricing and Delivery Problems
8	Requesting Another Source of Supply for Originating Code/Activity
9	Referred to PSNS Design Department
A	Referred to PSNS Planning Department
B	Referred to PSNS Technical Department

Appendix XVI

INDUSTRIAL PROBLEM CODES

CODE	PROBLEM
A	Tardy Reply by Vendor
C	Scheduling Problems (Vendor has)
D	Difficulty Obtaining Material to Meet Specifications
E	Equipment Failure (Vendor)
F	Failing to Quote (Vendors are)
K	Taken Exception to Specs/Dely (Vendor has)
M	Material Failure (Vendor has experienced)
N	No Material Available from Suppliers
P	Referred Solicitation to his Production Dept. (Vendor has)
R	Referred Solicitation to his Engineering Dept. (Vendor has)
S	Strike
T	Transportation Problems
W	Referred Solicitation to Another Dept. with Firm (Vendor has)
Blank	No Problem

CANCEL CODES

CODE	
1	Request of Requisitioner
2	Company Cannot Supply
3	Lack of Funds
4	Lack of Technical Data/Specifications
5	Contrary to Regulations
6	Crossed to FSN Requisition Forwarded into Supply System
7	Other

UNIFORM MATERIAL ISSUE PRIORITY

The appropriate Priority will be selected from the Issue Priority Designator Table below.

ISSUE PRIORITY DESIGNATORS
("Force/Activity Designator" - "Urgency of Need" Conversion Table)

URGENCY OF NEED DESIGNATOR (UND)	FORCE/ACTIVITY DESIGNATOR (FAD) I	II	III	IV	V
	ISSUE PRIORITY DESIGNATOR (IPD)				
DESIGNATOR A Emergency requirements for non-available material without which the Force/Activity concerned is unable to perform assigned missions or tasks.	01	02	03		
				07	08
DESIGNATOR B Requirements for non-available material which impairs the capability of the Force/Activity concerned. Missions can be performed, but with decreased operational effectiveness and efficiency.	04	05	06		
				09	10
DESIGNATOR C Material requirements needed on a more urgent basis than routine; e.g., immediate end use requirements for repair of collateral and administrative support equipment, to meet scheduled deployment, deficiencies in newly established outfitting or allowance lists.)	11	12	13	14	15
DESIGNATOR D Material requirements for initial outfitting and filling of allowances, scheduled maintenance, routine stock replenishment, repair or maintenance of supply systems stocks.	16	17	18	19	20

Appendix XIX

PURCHASE WEEKLY WORK IN PROCESS REPORT

BUYER CODE	FOLDER NUMBER	DOCUMENT NUMBER	OPEN DATE	DATE RECD	PRI	FSC	SOL MTH	CUST CODE	DMR	REF DEL	IND PBM	L C
21	024834	X6576501077613		0113	08		W	70121	0120			3
	025404	X7027301122460		0119	12		O	70273	0128			3
	028260	N2012001247021N	0156	0138	07	STEA	W	ALLOW	0142	B		4
	029286	N0025101520105	0189	0153	04	CLOT	W	SS599	0245			

NUMBER WORKABLE - 8

NUMBER UNWORKABLE - 2

TOTAL BACKLOG - 10

PURCHASE STATISTICS DD FORM 1057

LINE NO.	ACTIONS	DOLLARS	LINE NO.	ACTIONS	DOLLARS	LINE NO.	ACTIONS	DOLLARS	LINE NO.	ACTIONS	DOLLARS
SEC A											
1	724	243,947	3			5	321	145,088	6	4,399	863,087
1A	9	16,145	3A			5A	319	141,010			
SEC B											
1A			3	3,672	460,953	8			14		
1B	329	26,312	4			9			15		
SEC D											
1	18	99,429									
3	216	161,002									

PURCHASE STATISTICS REPORT S&A 80 AUG 1970

LINE NO.	JULY ACTIONS	DOLLARS	AUGUST ACTIONS	DOLLARS
1	436	40,393	418	37,891
2	332	242,170	323	250,656

Appendix XXI

VENDOR SIZE CODE

Code	Description
L	For Large Business
S	For Small Business

PURCHASE TYPE CODE

Code	Purchase Type
M	Purchase Order (Open Market)
A	Blanket Purchase Agreement
P	Imprest Fund
C	Contract
F	GSA Federal Schedule
X	Other
Y	Other Inter-Governmental (DSA, VETS)
Z	Other Contracts (Orders under Contract)
D	Indefinite Delivery Contracts
S	Standard Form 44

Appendix XXIII

NEGOTIATION AUTHORITY CODE

Code	Authority (10 U.S. CODE)
1a	2304.(9)(01a)
1b	2304.(9)(01b)
1c	2304.(9)(01c)
1e	2304.(9)(01e)
02	2304.(9)(02)
03	2304.(9)(03)
04	2304.(9)(04)
05	2304.(9)(05)
06	2304.(9)(06)
07	2304.(9)(07)
08	2304.(9)(08)
09	2304.(9)(09)
10	2304.(9)(10)
11	2304.(9)(11)
12	2304.(9)(12)
13	2304.(9)(13)
14	2304.(9)(14)
15	2304.(9)(15)
16	2304.(9)(16)
7a	2304.(9)(17a)
7b	2304.(9)(17b)

Appendix XXIV

PURCHASE METHOD CODE

Code	Method
A	Advertised
N	Negotiated (No Competition)
C	Negotiated (Competitive)

Appendix XXV

TRANSACTION CODES

Code	Description
1	Initial Input
2	Request for Quotation
3	Completion of Order
4	Change in Information on Computer

Appendix XXVI

STATE/CITY/COUNTRY CODES

(Use Standard Area/State/Country Codes)

State	Code	State	Code
Alabama	AL	Montana	MT
Alaska	AK	Nebraska	NB
Arizona	AZ	Nevada	NV
Arkansas	AR	New Hampshire	NH
California	CA	New Jersey	NJ
Colorado	CO	New Mexico	NM
Connecticut	CT	New York	NY
Delaware	DE	North Carolina	NC
Florida	FL	North Dakota	ND
Georgia	GA	Ohio	OH
Hawaii	HI	Oklahoma	OK
Idaho	ID	Oregon	OR
Illinois	IL	Pennsylvania	PA
Indiana	IN	Rhode Island	RI
Iowa	IA	South Carolina	SC
Kansas	KS	South Dakota	SD
Kentucky	KY	Tennessee	TN
Louisiana	LA	Texas	TX
Maine	ME	Utah	UT
Maryland	MD	Vermont	VT
Massachusetts	MA	Virginia	VA
Michigan	MI	Washington	WA
Minnesota	MN	West Virginia	WV
Mississippi	MS	Wisconsin	WI
Missouri	MO	Wyoming	WY
Other Areas	**Code**	**Other Areas**	**Code**
Canada	CD	Bremerton	BR
District of Columbia	DC	Tacoma	TA
Vietnam	VN	Puget Sound (i.e., Seattle, other than Brem, TAC)	PS

PURCHASE PROCESSING TIME REPORT

PURCHASE TYPE	NO. OF DAYS	WRITTEN SOLICITATION	AVE. NO. OF DAYS	ORAL SOLICITATION	AVE. NO. OF DAYS
H	0-5	2			
	6-15				
	16-30				
	31-60				
	61-90				
	Over 90				
Total		2	2.0		
L	0-5			5	
	6-15				
	16-30			1	
	31-60				
	61-90				
	Over 90			2	
Total				8	91.6
M	0-5	156		348	
	6-15	257		238	
	16-30	446		57	
	31-60	231		18	
	61-90	21		4	
	Over 90	9		7	
Total		1,120	23.6	672	11.2
O	0-5	3		1	
	6-15	6		1	
	16-30	2			
	31-60				
	61-90				
	Over 90				
Total		11	11.3	2	4.0

Appendix XXVIII

SUMMARY OF AWARDS BY GEOGRAPHICAL AREA

LOCATION	ACTIONS	DOLLARS
CA	218	262,292
KY	1	5
PS	988	416,220
TA	92	392,057
TOTAL	1,299	1,070,574

Appendix XXIX

PURCHASE PRICE HISTORY FILE

	PART NUMBER	DATE	PIIN	QUANTITY	AMOUNT	VENDOR
FSN						
	20103172416	Sep 1970	71M3050	1	50	T1021
	20104992477	Sep 1970	0167C014	3	50	61208
PART NUMBER						
	C1575A	Sep 1970	71M1489	2	69	T1017
	C1575A	Sep 1970	71M1489	2	59	T1017
NOMENCLATURE						
	Blue Cheese Dressing	Sep 1970	71M0618	48	22	L2508
	Boat Letters	Sep 1970	10470D0701	1	187	91373
SERVICES						
	NCR Mach Rental	Sep 1970	71F0317	1	261	T1125
	Nitrogen Services	Sep 1970	71F0947	1	1,323	T0082

Appendix XXX

PURCHASE STATUS KEY PUNCH GUIDE

	DOCUMENT NUMBER													
	SERV	REQUISIT'R	- DATE	SERIAL	DEM SUF	PUR SUF		SERV	SUPPLEMENTARY ADDRESS	SIG	PRI	DATE RECD PURCH	M & S	FOLDER NUMBER
– P U 0 01	02	03	04	05	06	51		07	08	09	10	12	13	14

RDD/DMR	DIST/COG	FUND CODE ORIG	FUND CODE CHAR	UNIT OF ISS	QUANTITY		EXC FLD		EST. COST	BUYER	SOL METH
– 11	20	21	22	23	24				50	25	25

	PHC	STOCK NUMBER/PART NUMBER/NOMENCLATURE				STOCK NUMBER/PART NUMBER/NOMENCLATURE (CONT.)
		FSC	FIIN	TSMC	ADDITIONAL	
– P U 1 01	15	15	17	18	19	30

	REQUEST FOR QUOTE/PROPOSAL NUMBER	OPENING DATE		AMOUNT	AWARD DATE
– P U 2 01	28	29		42	52

	PURCHASE/CONTRACT/ORDER NUMBER	CALL NUMBER	EST. DELY DATE	SHIP	VENDOR			PUR TYPE	NEG. AUTH	PUR METH	
					CODE	SIZE	LOC.				
– P U 3 01	32	33	34	35	36	37	38	39	40	41	

–	DELAY	PROB	CANC	CHANGE BLOCK	NEW INFORMATION	SEATTLE DELIVERY C/402.11 ☐ C/301.41 ☐ *(Other than Imprest Fund)*
– P U 4 01	44	45	46	47	48	IMPREST FUND: BREMERTON C/301.411 ☐ SEATTLE C/301.16 ☐

PURCHASE STATUS KEY PUNCH GUIDE
13ND NSC 4200/1 (Rev. 2-70)

Appendix XXXI

PURCHASE MANAGEMENT BY "ASPIRE"

While the previous system for reporting status of purchase actions was manual, ASPIRE provides the means to automate this information and produce important by-products. Outstanding orders are shown on a daily status report and weekly work-in-process listing. Completed actions are purged from a tape file monthly. Seven reports are generated from the purged data:

..A purged listing with all the orders placed the previous month by requisition number.

..Statistical reports for direct submission of the S&A 80 and DD 1057.

..A Processing Time Report reflecting the processing time for each purchase method.

..A Summary of Awards by Geographical area.

..A Vendor File in vendor code and vendor name sequence.

..A Price History printout which is a record of all buys for the preceding quarter over $50 value.

The process of getting all this data on a tape file starts when the requisition reaches the Purchase Department's input desk. At that time, a procurement clerk fills out a multi-page Purchase Status Key Punch Guide with the basic requisitions for a like item. She then forwards the folder to the appropriate supervisor who, in turn, assigns it to one of the buyers.

When the buyer receives the folder, he reviews the requisition(s) and indicates his code number and the solicitation method he intends to use. The first page of the key punch form is torn off and sent to key punch. The next day that requisition

entry appears on the daily status listing. The second page of the key punch form indicating the quotation or proposal number or bid opening data is sent to key punch when that information becomes available.

When the award is made, the PIIN, call number, delivery data, vendor code, vendor size, vendor location, the purchase type, negotiation authority, purchase method, and the amount are sent to key punch on the third page of the form. Should there be any changes in the status of a particular requisition at any time after the first page is submitted, such as a company strike or cancellation request, the final or fourth sheet is used to correct the information on the tape file.

The initial results from these inputs are the daily status listing and status cards. Copies of the listing are sent to Puget Sound Naval Shipyard Supply Department, and to our status desk. Status cards that are unique in application are forwarded to the Puget Sound Naval Shipyard Supply Department for direct input to the Shipyard's automated industrial control system and to NSC's Outfitting Branch. UADPS AB cards are produced for all other activities.

AB cards are used to give the PIIN, call number, if any, and estimated availability date. Each Monday a weekly work-in-process listing is made in buyer code sequence. This listing is used by management to detect aging, to schedule work, and to evaluate buyer performance.

ASPIRE outputs are compatible with other UADPS programs in addition to furnishing customers with current information on their requisitions. Status cards are used to input requisition status on the MSIR (Master Stock Item Record) for stock replenishment items. Additional data necessary for supply

management reporting (NAVSUP 1144 report) are also extracted from information in the ASPIRE file.

The NSCPS Accounting and Disbursing Division uses ASPIRE to establish stock fund allotment commitments when a requisition is initially introduced on the master purchase file; and when the award is made, cards from the ASPIRE program serve as a cross-reference between the requisition and contract number. Subsequently, fund obligation cards are used to liquidate the stock fund commitment and to obligate the stock fund allotment. ASPIRE also assists the NSCPS Management Planning Division in analyzing and predicting manning and work levels, and in identifying customers and the volume of their business with NSCPS.

The purchase processing time report, which is made from the monthly purged tape, is used in evaluating over-all performance of the Purchase Department. The results are compared with those of previous months and with those of other activities, to indicate any trends. The report is broken down into purchase types; i.e., contracts, BPS's, delivery orders, etc. Contracts are broken down again into advertised, negotiated competitive, and negotiated non-competitive. All other purchase methods are divided to indicate whether they were purchased through written or oral solicitation. The report indicates by purchase type and solicitation method how many orders were placed within varying number of days. It should be noted that this report does not give data for one requisition. It gives the data for an order or folder which may have many requisitions in it.

Another ASPIRE output which speaks for itself is a statistical report S&A 80 and DD 1057 produced in required format. Since the S&A 80 is submitted quarterly, only the data

applicable at that particular point in time is printed. The report submitted the second quarter of the fiscal year, for example, would contain the data for the first and second quarters and summation of the first half of the fiscal year. The DD 1057 is ready for submission on a monthly basis.

The Geographical Area report is printed monthly. This report shows the awards (actions and dollar value) that were given to each state and to selected areas in the Puget Sound region.

A vendor file is another ASPIRE output. This file is a listing of the vendors with which the Purchase Department does business in vendor name and vendor code sequence. The address and telephone number, as well as business size, are also indicated on the listing.

At this writing, there are 3,885 vendors on the listing. This listing is used as a ready reference for buyers and procurement clerks in locating companies. It also aids in making the internal input into ASPIRE for the Price History Report. It should also prove halpful in finding vendor codes for MILSCAP reporting.

The Price History Report, which is updated quarterly, is a composite of a number of monthly purge tapes. It is hoped that this report will become an important tool. The history file gives the buyers a record of all previous buys of similar or identical items. This information is used in substantiating prices of current requirements. Besides showing quantity and unit price, it also shows PIIN and vendors of previous buys. It is divided into four segments for ease in input and usage. The first division, by PSN, causes no problems either for input or later use. The second major grouping is by reference number, whether manufacturer's drawing, part, etc., or by specification

or plan number. This is a difficult area in which to achieve uniformity of input, but has already proven workable. The third division, by nomenclature, is expected to be relatively small but is certainly the most difficult grouping to input and control. The final division lists various types of services.

ASPIRE application does not stop with our present system. The data contained on tape can provide the basic information needed for Resources Management System (RMS) reporting. The feasibility for automated MILSCAP reporting has already been studied and has excellent possibilities. Another possible use of ASPIRE is the printing of the Bidders' List and keeping it current. It has proved to be an excellent management tool to date, and additional system requirements may enhance its use in the future.

MSC Puget Sounds's Data Processing Department has forwarded ASPIRE program documentation to FMSO Oakland for review and possible reference in design of future UADPS programs. While the ASPIRE program does not automate the purchase action itself, it provides management with an effective tool for evaluating and controlling the purchase operation. Its statistical by-products have improved purchase reporting procedures; and last but not least, the timely availability of status on purchase actions provides an important service to our customers.

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